BUTANE-PROPANE News

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QUEFIED PETROLEUM GAS INDUSTRY

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Anchorgas

BUTANE-PROPANE

. . . Anchor facilities now cover the entire petroleum industry from oil producing, through refining to the final production of Butane-Propane Anchorgas.

. . . Anchor is enlarging it's shipping facilities. Anchorgas is now available from more than fifty points throughout the oil producing areas for greater economy to both users and distributors.

. . . Anchor also offers to the industry complete engineering facilities and assistance on special problems pertaining to the installation and various uses of Butane-Propane.

ANCHOR
Petroleum Company
Tulsa, Oklahoma
PRODUCERS & MARKETERS

JANUARY, 1946
In Two Sections. Part 1.

Pt. 2 Index

Strength plus light weight . . . that's what sold me on Hackney Cylinder

• One user tells another . . . and so the prefe ence for Hackney Cylinders continues to gro Why? Because the Hackney process of co drawing assures a strong, lightweight cylind . . . one that provides long, dependable servi

There is only *one* body-weld in its entire co struction—X-ray controlled to provide u formity and maximum strength. The Hackn cold drawing process makes possible unifor side-wall thickness as well as eliminating d fective material. To assure proper physi properties of both steel and weld, the finish cylinder is heat-treated in time and temper ture-controlled furnaces.

Hackney Cylinders have been designed wi users' requirements in mind. Durability, sma appearance and light weight recommend the to L-P Gas distributors for the storage a transportation of their products.
Write for full details today.

Pressed Steel Tank Company

Manufacturers of Hackney Products

1399 Vanderbilt Concourse Bldg., New York 17

208 S. La Salle St., Rm. 2069, Chicago 4 552 Roosevelt Bldg., Los Angeles

1487 S. 66th St., Milwaukee 14

CONTAINERS FOR GASES, LIQUIDS AND SOLIDS

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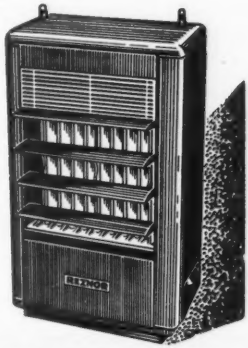
REZNOR

Gas unit heaters

1. Suspended—saves floor space.
2. Gas fired—clean, automatic heat.
3. Attractive—seal brown.
4. Will heat any size area.
5. For commercial and industrial buildings.
6. Easily installed.

★

Propeller fan and blower types. Nine sizes of each.



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Manufacturing Co.

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MERCER, PENNA.

NO BOILERS • NO STEAM LINES
NO FUEL STORAGE • NO FIRE TENDING

BUTANE-PROPANE News

Reg. U. S. Pat. Off.

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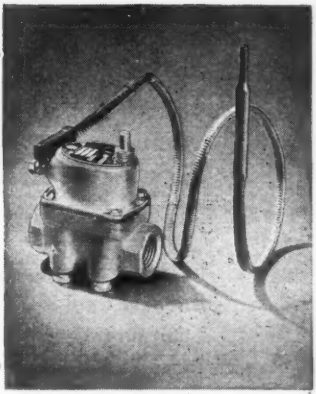
New MR-2 SAFETY THERMOVALVE



THIS new electro magnetic thermovalve assures unfailing safety in gas control applications. Used on space and unit heaters, central and floor furnaces, water and range heaters, hot water and steam boilers. Handles manufactured, natural or LP-Gases.

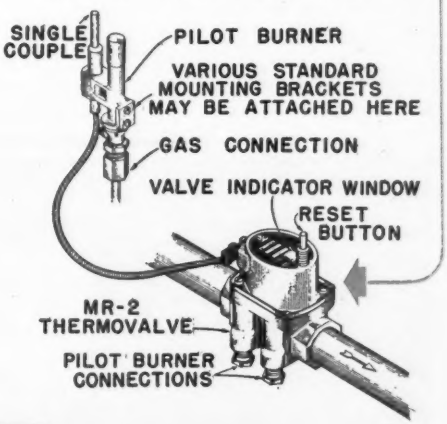
On the installation diagram, the new MR-2 valve and the new 26-R Pilot Burner are used for out-pilot safety control. No outside current is required. Valve holds open until released by pilot-flame failure. 100% gas shut-off will be maintained until pilot light is reignited and valve manually reset by push button.

For further information, contact your nearest factory branch or distributor, or write for Catalog 52-B and Manual FI-101.

Check these outstanding features:

- Streamlined design.
- High-flow capacities.
- Visual valve position indicator.
- Design simplicity.
- Sealed electro magnetic assembly.
- Heavy duty 5/16 round thermocouple.
- Flexible armored cable leads.

MR-2 INSTALLATION



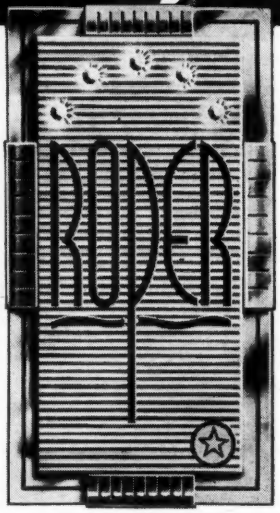
GENERAL CONTROLS

801 ALLEN AVENUE — GLENDALE 1, CALIF. 4—1

FACTORY BRANCHES: Philadelphia, Atlanta, Boston, Chicago, Dallas, Kansas City, New York, Denver, Detroit, Cleveland, Pittsburgh, Houston, Seattle, San Francisco. Distributors in Principal Cities.

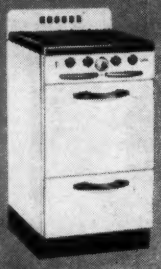
THEY'RE HERE..NOW!

Jewels of



Now on the production lines . . . new gas ranges by Roper . . . with refinements that are truly "Jewels of Cooking Performance" . . . Here are Jewels that have instant appeal to every housewife . . . Jewels that will fill your salesmen with supreme confidence in a superior product . . . Jewels by any standard of comparison . . These new Roper gas ranges are the result of Roper's 60 years' experience in manufacturing "America's Finest Gas Range". They are built specifically for L. P. (Liquefied) gas.

OTHER NEW ROPER GAS RANGES YOU'LL WANT TO KEEP YOUR EYE ON



Model 200
A compact, fully equipped new Roper "Rangette" that will prove popular where space is limited.

Model 3300
A 36-inch Roper gas range with definite customer appeal. Will prove ideal in many a home.

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Cooking Performance

Model 7300
This model offers a standard 4-burner cooking top with large working surface finished in sparkling white enamel. Other features are identical to those in model 7304 left.

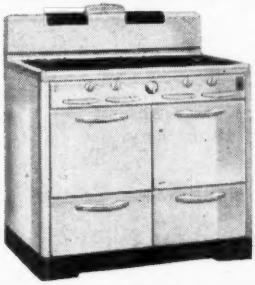
Model 7302
In this fine gas range is found a "Separated" 4 burner cooking top with two burners at each end of range. It also includes all other features of model 7304 left.

Model 7306
Six top burners give this new Roper the extra capacity desired in many a home. Other features are identical to those in model 7304 at left. An outstanding gas range.

Model 7304

Tops on the list is this model with patented "Staggered" cooking top . . . "Simmer-Speed" top burners . . . extra capacity broiling oven at waist-high level . . . "Glo" broiler . . . big "3-in-1" oven . . . "Seal-Tight" doors . . . and other features.

Model 3804



A splendid new Roper offering "Simmer-Speed" top burners . . . "Staggered" cooking top . . . big "3-in-1" oven . . . "E-Z-Roll" broiler . . . giant "Store-all" . . . and a great deal more.

Model 3800
This new gas range has standard 4-burner cooking top plus all those other features of the model 3804 shown at left.

Model 3802
In this smart model is included a "Separated" 4-burner cooking top. It also has those features of the 3804 shown at left.

ROPER
GAS RANGES

GEO. D. ROPER CORPORATION, Rockford, Illinois. Offices and Warehouses in principal distribution centers.

THE BOTTLED GAS MANUAL

A field guide and text book for dealers, salesmen and servicemen

352 Pages of Answers to Every Day Questions About Liquefied Gases, Appliances and Equipment

These Are the Chapter Headings

What Is Propane?
The Behavior of Gases
Heat and Temperature
What Goes On Within a Propane Cylinder?
The Simple Regulator
Regulator Manifolds
Regulations—Equipment Selection and Installation
LP-Gas Pipe Lines
Testing for Leaks and Adjusting Burners
Fundamentals of Thermostats
Pilots and Pilot Controls
Burner Design and Application
Appliance Conversions
Facts About Water and Water Heaters
Types of Water Heaters
Selecting and Installing the Water Heater
Competitive Fuels—Wood
Competitive Fuels—Coal
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Gas Lighting
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Gentlemen: Please send me.....copies of The Bottled Gas Manual for which I am enclosing check (or money order) for $.....

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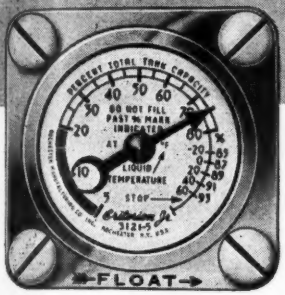
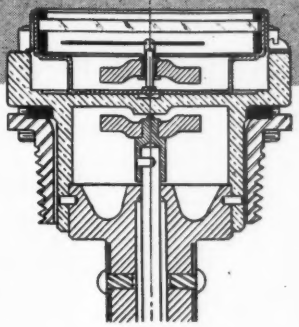
AS ACCURATE AS A COMPASS

...and just as Simple!





Rochester's 3120 gauge fits Bastian-Blessing head, No. 2465 or Weatherhead manifold No. 900 as well as pipe thread risers, 1½" or 2".

Rochester's 3121 gauge fits Bastian-Blessing Multi-Valve head, No. 2418

With Rochester LPG gauges on your tanks or I.C.C. cylinders, you always know what the liquid level is exactly. Accuracy is built into these instruments at every step in the production line. From minutest part to the forged casing, Rochester "Criterion" Gauges are precision tooled, stamped, assembled, and inspected.

The gauge head is separated from the tank assembly by a forged plate. Impulses are transmitted by two permanent, non-electric magnets, one on the center shaft below the plate, the other in the dial indicator assembly. See Fig. 1 above. This means accurate transmittal plus *safety,* just as important. There is *no* reason for taking changes with other devices when Rochester solves the indicator problem so simply, so safely, so permanently so, accurately.

ROCHESTER MANUFACTURING CO., INC.
17 ROCKWOOD STREET ROCHESTER 10, N. Y.

Rochester Guaranteed Accuracy

ENGINEERED INSTRUMENTS

LIQUID LEVEL, TEMPERATURE AND PRESSURE GAUGES

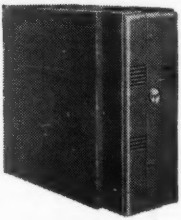
New Ideas will sell

(SUCH AS BRYANT PANEL HEATERS)

WINTER AIR CONDITIONERS

At left—The Vertical model with CAST IRON or STEEL heat exchangers fits closet space.

Below—The basement type model built with both CAST IRON or STEEL heat exchangers.



BOILERS

Forty-two different boilers for steam and hot water heating. All have CAST IRON sections.

GRAVITY FURNACES

Built with CAST IRON or STEEL heating elements, this gravity furnace is destined to become popular for small homes heating.

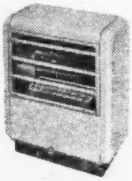
The most complete line of gas heating equipment in the nation!

more gas heating equipment

Postwar

SPACE HEATERS

Where circulated heat is required, this Console model does the job thoroughly and efficiently.



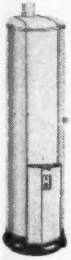
New portable space heaters are built in modern streamline designs.

Now you will find greater opportunity than ever before in selling the Bryant Heater line . . . new products and improvements that are practical, proved and salable. With the Bryant line, you can offer equipment within the means of every income group and to fit every home heating need.

Get the whole "new idea" story. Ask your Bryant distributor to show you the easel presentation titled "Postwar Picture of Home Heating". Bryant Heater Company, 17825 St. Clair Ave., Cleveland 10, Ohio . . . One of the Dresser Industries.

Unit heaters for garages, stores and shops.

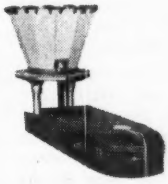
WATER HEATERS



The new streamline water heater matches the modern note of postwar home designs.

Six new automatic water heaters are included in the Bryant Heater postwar line.

CONVERSION BURNERS



Conversion burners to meet postwar modernization demand.

LET THE PUP BE FURNACE MAN

bryant

GAS HEATING

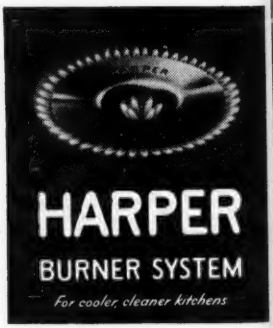
"What woman *wills*... will be"

She has learned that this top burner requires less work

THE HARPER BURNER SYSTEM has done much to eliminate the drudgery from cooking. Meals are easier to prepare . . . less time need be spent at the range . . . and better cooking results are assured. So, women want it!

The secret of the Harper Burner System efficiency is the more accurate *control* of beat that it offers. Each burner is actually 2 burners in 1 . . . a burner within a burner . . . both operated and controlled by a single handle. The small, inner *cooking* burner can be used entirely independently of the outer *starting* burner. No other top burner possesses this tremendous advantage.

A recent survey showed that 98% of the women interviewed want modern top burners on their next range. Representing today's ultimate in this field, the Harper Burner System thus ties in admirably with the AGA campaign of appliance improvement and promotion to enhance the position of gas as the ideal cooking fuel.



On next page
WHAT USERS SAY

Copr. 1946, Harper-Wyman Co.

"SAVES COOKING TIME"

says this user of the HARPER BURNER SYSTEM

LIKE THOUSANDS of other women, Mrs. Winchell Taylor, of 140 W. 75th St., Seattle, Wash., has found that the Harper Burner System saves much time when preparing a meal. She says:

"I save lots of cooking time with the Harper Burner System. That's because I use less water than formerly . . . a single cupful is enough for cooking vegetables. Naturally, it's much faster to bring a cupful of water to a boil than it is to heat several quarts."

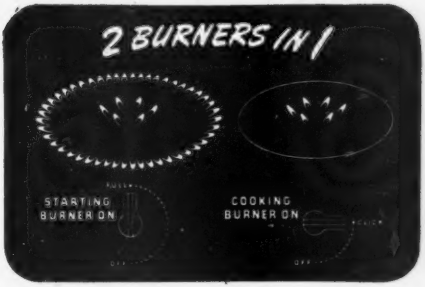
A money saver, too

IT IS ONLY NECESSARY to use a single cup of water when cooking with the Harper Burner System.

Two quarts of water take 12 minutes to bring to a boil . . . a cupful takes less than 2 minutes. This means a substantial saving in the amount of *gas* used. The saving soon amounts to much more than the slight additional cost of a Harper equipped range.

Pot watching also is eliminated with the Harper Burner System. Because of the accurate low heat levels possible, it can be adjusted so that it *always* takes more than one hour to boil away a single cupful of water.

NOTE: A *new* and *improved* Harper Burner System is now available for range manufacturers. Harper-Wyman Company, 8562 Vincennes Avenue, Chicago 20, Ill.



The Harper Burner System operates on the unique principle of "2 burners in 1" . . . a STARTING BURNER plus a small, economical COOKING BURNER, both controlled by the same handle. It is subject to finer gradations of low heats—greater control and economy—than any other top burner made.

HARPER BURNER SYSTEM "HOLDS THE LINES FOR GAS"

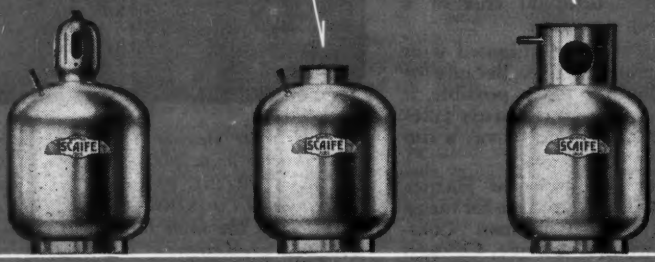
Scaife Cylinder

PICK THE TYPES THAT *do your Jobs bes*

Made in sizes for 20 to 420 pounds propane capacity, Scaife LP Gas Cylinders serve your every need. Typical designs are illustrated below, and at the right some of the outstanding features are described briefly.

Scaife designs are based upon broad experience in the manu ture of pressure vessels, a thorough understanding of problems of the LP Gas Indus

For complete satisfaction and dependable service be sure and—SPECIFY SCAIFE!



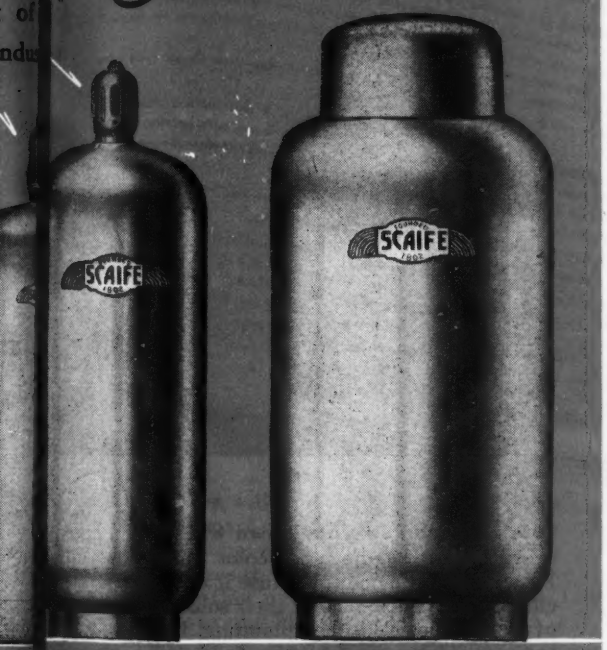
Scaife Company

Founded 1902

West Coast Distributors: PARAMOUNT MFG. CO., San Francisco, Californ

for LP-GAS

Complete Line — Highest Quality



ONT Pittsburgh District, PENNSYLVANIA
REPRESENTATIVES IN PRINCIPAL CITIES

These features mean Longer Life — Better Service — Greater Economy

Uniform Strength

Scaife Cylinders are roll-formed from steel sheets of uniform strength and thickness. Heads are pressed into an ellipsoidal shape.

Welded and Brazed

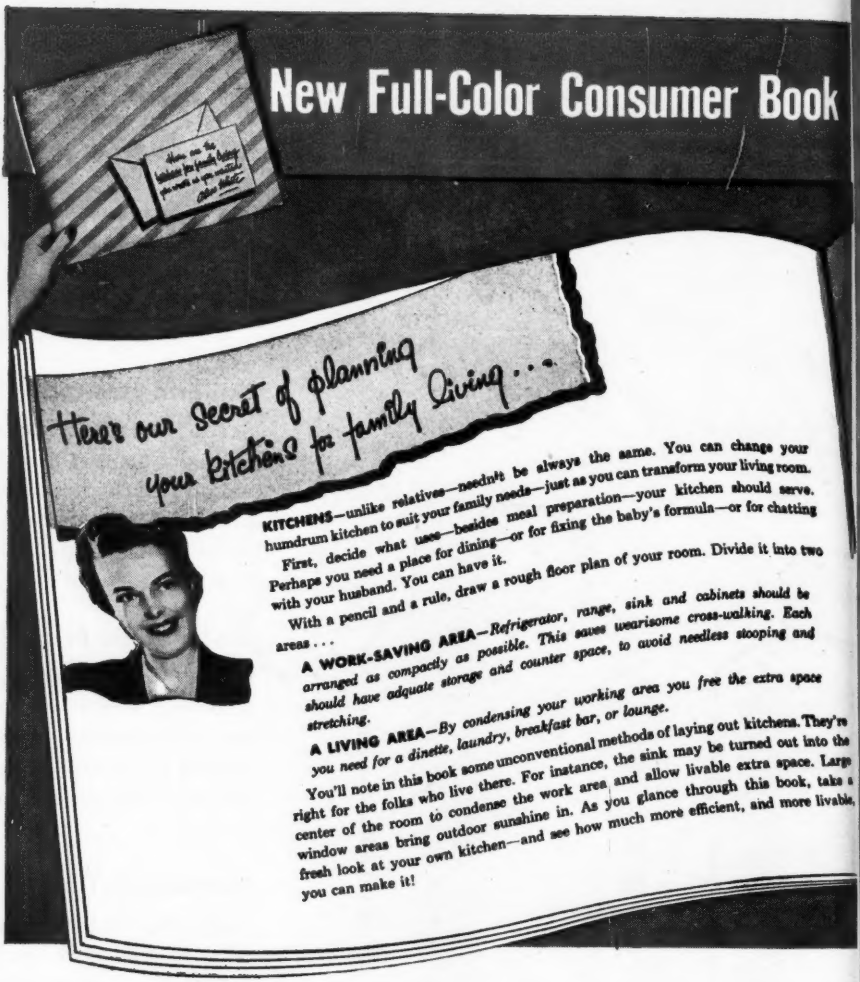
Skilled craftsmen and modern automatic equipment assure the dependability of Scaife welded and brazed joints. X-ray examinations freely used.

Thoroughly Tested

Every Scaife Cylinder is checked and tested four ways by four crews before shipment.

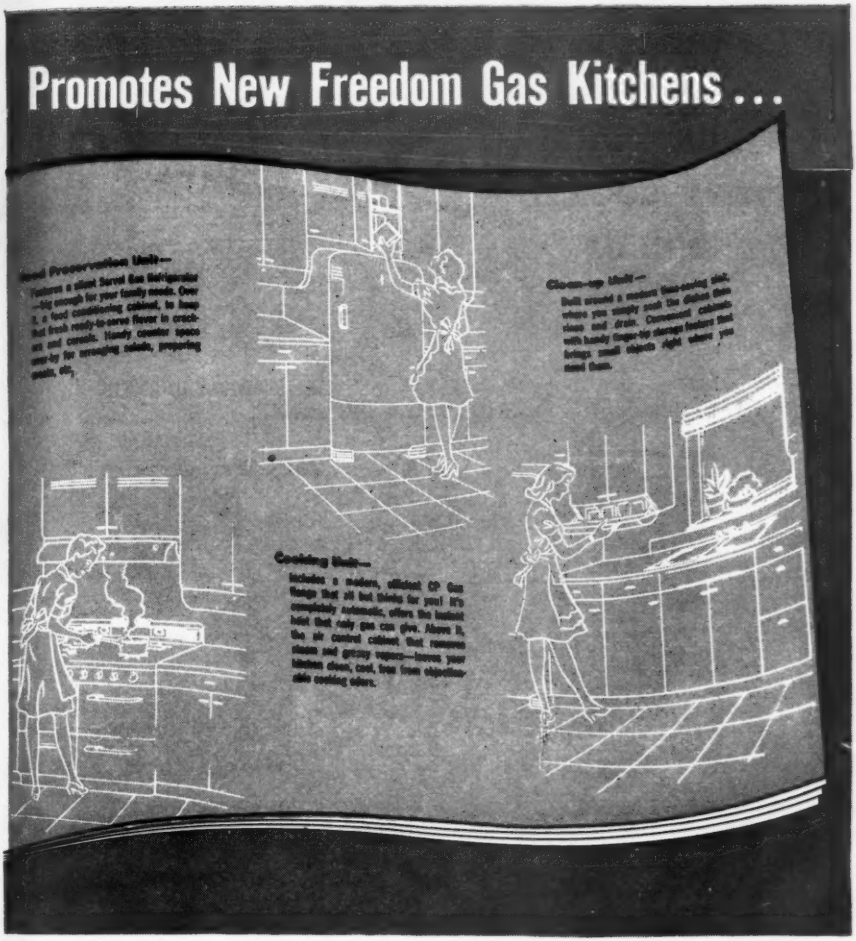
Easy to Handle

The smooth-sided Scaife Cylinders are well-balanced, sturdy and easy to handle. They have the stamina for many years of dependable service.


New Full-Color Consumer Book
Here's our secret of planning your kitchens for family living . . .
KITCHENS—unlike relatives—needn't be always the same. You can change your humdrum kitchen to suit your family needs—just as you can transform your living room.
First, decide what uses—besides meal preparation—your kitchen should serve. Perhaps you need a place for dining—or for fixing the baby's formula—or for chatting with your husband. You can have it.
With a pencil and a rule, draw a rough floor plan of your room. Divide it into two areas . . .
A WORK-SAVING AREA—Refrigerator, range, sink and cabinets should be arranged as compactly as possible. This saves wearisome cross-walking. Each should have adquate storage and counter space, to avoid needless stooping and stretching.
A LIVING AREA—By condensing your working area you free the extra space you need for a dinette, laundry, breakfast bar, or lounge.
You'll note in this book some unconventional methods of laying out kitchens. They're right for the folks who live there. For instance, the sink may be turned out into the center of the room to condense the work area and allow livable extra space. Large window areas bring outdoor sunshine in. As you glance through this book, take a fresh look at your own kitchen—and see how much more efficient, and more livable, you can make it!

Every woman in your town will want a copy of this exciting, new full-color "Kitchens for Family Living" book, because it deals with specific family problems and their solution in terms of today's smart kitchen planning. It shows how individual kitchens, featuring the L-P Gas Range and the Servel L-P Gas Refrigerator, can be planned and installed quickly, easily—using Servel-designed cabinets, sinks and accessories. It explains how every kitchen can be made cleaner, cooler, free from objectionable cooking odors.

Promotes New Freedom Gas Kitchens . . .



Homemakers will find its 28 dramatic pages packed with smart new kitchen ideas, with brilliant color schemes and practical floor plans. For this book utilizes the techniques of the most up-to-date decorating magazines to create livable, usable, work-saving kitchens.

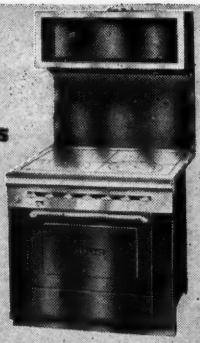
"Kitchens for Family Living" is available to L-P Dealers at 10¢ per copy. Order your supply now from Servel, Inc. If you have not yet seen this practical, colorful book, send for your free copy today. Write to Servel, Inc., Evansville 20, Ind.

Servel

UNIFIED KITCHENS
EVANSVILLE, IND.

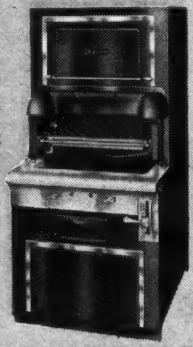
FOR YOUR EVERY COOKING NEED!

Ranges



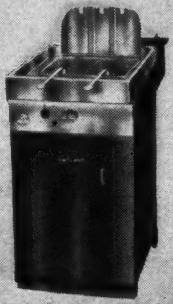
Garland No. 45-28 CX

Broilers



Garland No. 632

Deep Fat Fryers



Garland No. 614-28

Choose from the Line of the Leader!

To hold first place, a leader must consistently give customers more for their money. Garland does it by keeping close to the problems of those who own and those who operate volume cooking equipment. Garland does it by continuous research and engineering development to solve those problems. The result is equipment which excels in speed, convenience, flexibility, efficiency and economy. Write us for informative catalog.

LEADER IN COMMERCIAL GAS COOKING EQUIPMENT

GARLAND THE TREND IS TO GAS FOR ALL COMMERCIAL COOKING

A Product of Detroit-Michigan Stove Co. · Detroit 31, Michigan

LETTERS

• Have you service or operating problems? Submit them to us and our technical department will endeavor to help you.—Ed.

•

Gentlemen:

As one of your charter subscribers for your Butane-Propane News, I thought perhaps you can give me some information.

What I would like to know is, do you know what price the average company that sells pure propane in a gas town plant charges. I see in your Handbook about 500 Btu, and so on, but can't find any rates where they sell the straight propane gas to the customers.

R. N. H.

Oklahoma

Most town plants have a sliding scale of rates which are based on the amount of gas consumed by the customer.

These rates will vary from 10 cents per pound down to 2.5 cents per pound. The gas is metered and the meters register in therms, pounds, or cubic feet, and the filling is made to suit the type of meter used.

There is usually a minimum monthly charge of from $1 to $2 per customer. These rates are based on the cost of propane, investment in plant, distribution system and operating costs. Rates are approved by the state corporation commission, railroad commission or other public body that has jurisdiction over public utilities.

Rates are published and posted by the utilities and no changes up or down can be made without prior approval by the commission in charge.—Ed.

•

Gentlemen:

We are seeking some information in regard to the use of propane gas for welding and cutting.

From whom can we buy the equipment that we would need? Does propane furnish enough heat for welding? Would it be as good as acetylene gas? Any information you can give us will be greatly appreciated.

C. V. K.

Missouri

Propane is a superior fuel to acetylene for cutting, leaving a cleaner edge. It is not satisfactory for welding as the flame temperature is not sufficiently high; however, it is satisfactory for brazing, soldering and all uses of this type.

The Bastian-Blessing Co., Chicago, makes a complete line of regulators and cutting and welding torches for use with propane and oxygen.—Ed.

•

Gentlemen:

We would like to ascertain whether or not any applications of B-P Gases to the following industries have come to your attention:

Glass blowing, ceramics, neon, jewelry and art enameling.

Should you know of existing applications about the subjects mentioned, we would like to correspond with the users for further information.

L. D. W.

Hawaii

Butane and propane, and mixtures of the two, are used quite widely in all of the operations you name. Usually special burners are required for different operations and names of manufacturers of burners will be found in BUTANE-PROPANE *News*.—Ed.

•

Gentlemen:

If you have information on safety as applied to the butane industry, we will appreciate receiving advice on this subject.

N. B. S.

Mississippi

BUTANE-PROPANE *News* is continually running articles upon this subject. A series of eight articles setting out safety in the different branches of operation as practised by the Phil-

lips Petroleum Co. has just been completed in the November issue of our magazine.

Nearly all states have regulations covering the installation, transportation and storage of liquefied petroleum gas and these must be adhered to strictly. If you do not have a copy of Pamphlet Number 58 of the National Board of Fire Underwriters you should send for one. A copy can be obtained from that organization at 222 West Adams St., Chicago. There is no charge.

The subject of Safety is also very extensively covered in our Handbook Butane-Propane Gases, a copy of which you have just ordered. —Ed.

•

Gentlemen:

Would you be kind enough to refer us to some sources of information in reference to the mechanics or chemistry involved and possible correction of the moisture on windows, doors and in buildings as a result of gas heating?

E. F. B.

Arkansas

The American Gas Association has done considerable research on the formation of moisture from the use of unvented heaters and quite possibly they can give you the technical information you need. If not, please let us know and we will look up other sources.—Ed.

•

Gentlemen:

Will you please inform me as to where I can get a manual dealing with space heating with B-P Gas?

I have been using Steam heat rules and then using ratio published by some manufacturing concerns, but wondered if there was some manual dealing in B-P heating only. Thank you.

T. C. W.

Wyoming

We publish a book entitled "The Bottled Gas Manual" by C. C. Turner, which ran serially in BUTANE-PROPANE *News* for nearly three years.

It covers the subject of space heating very thoroughly and I am sure that if you do not have the back issues of the magazine in which it appeared that it will be well worth your while to order a copy of the book, which sells for $4.—Ed.

Gentlemen:

We are interested in a list of companies which manufacture butane and propane gases so we could contact them to see if we could purchase gas by the carload.

We would prefer companies within 1000 miles of Knoxville so we wouldn't have such a long distance to ship it.

N. G. D.

Tennessee

The names of several producers and marketers of B-P Gas in your locality are as follows:

Anchor Petroleum Co., Tulsa.

Carter Oil Co., Tulsa.

Cities Service Oil Co., Bartlesville.

Phillips Petroleum Co., Bartlesville.

Sinclair Prairie Oil Co., Tulsa.

Warren Petroleum Corp., Tulsa.—Ed.

•

Gentlemen:

I'm new in the butane business and do not know where to look for literature. I am wondering if you could tell me where to find information on installing tanks, stoves, hot water heaters, etc.

O. B. B.

Arkansas

I can refer you to two books published by us, "The Handbook Butane-Propane Gases" and "The Bottled Gas Manual."

These are the only textbooks which are published upon our industry. From month to month, however, we carry a great deal of this kind of information in BUTANE-PROPANE *News*.

You should also send for a copy of Pamphlet Number 58 of the National Board of Fire Underwriters. There is no charge for this pamphlet and it gives the general codes covering installation practices. You should also write to the secretary of your state to be sure that you have a copy of the laws in your state applying to the liquefied petroleum gas industry.—Ed.

•

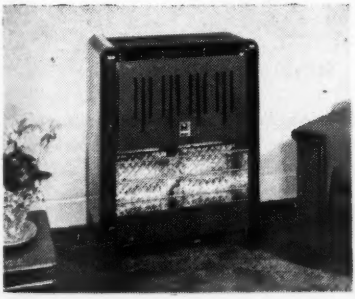
• **BUTANE-PROPANE *News* welcomes letters from our readers, but it must be understood that this magazine does not necessarily concur in opinions expressed.—Editor.**

HUMPHREY

RADIANTFIRE CIRCULATORS

A HUMPHREY PRODUCT

REMEMBER THIS MARK OF QUALITY.



Lucky is the home that enjoys the comfort and economy of a Humphrey Radiantfire Circulator. This smartly styled Circulator combines the cheery, penetrating warmth of radiant heat with the room-filling comfort of warm, circulated air. Pure radiant heat, sun-like in character, pours from this "Open Front" Circulator warming everything in its path. Cold floors are banished. Here is ideal heat for homes, shops and offices.

GENERAL GAS LIGHT COMPANY KALAMAZOO, MICHIGAN

23 Warren St., New York City | 2nd Unit Santa Fe Bldg., Dallas | 225 Eleventh St., San Francisco

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BUTANE
PROPANE

1. HIGH QUALITY PRODUCT
2. DEPENDABLE SUPPLY
3. EXPERIENCED ENGINEERING
4. EFFECTIVE ADVERTISING HELPS
5. PRACTICAL OPERATING ASSISTANCE

Mr. Gas Buyer: *If you are considering a source of liquefied petroleum gas supply . . . a distributorship . . . or plan to expand your present operation, you will find it to your advantage to contact our nearest Branch Office and ask a Phillips representative to give you further details.*

PHILLIPS PETROLEUM COMPANY

Philgas Division

BARTLESVILLE, OKLAHOMA

Branch Offices in NEW YORK, CHICAGO, PHILADELPHIA, MILWAUKEE, DETROIT, ST. LOUIS, SHREVEPORT, AMARILLO, HIBBING, DENVER

THE WORLD'S LARGEST MARKETER OF LIQUEFIED PETROLEUM GAS

COMMENT

THE Liquefied Petroleum Gas Association has appealed to the Bureau of Explosives for support in its claim that many dealers cannot comply with the 5-year retest requirements for ICC cylinders because of a lack of men and materials.

The Bureau, in turn, asks the ICC what can be done, and the ICC is making an investigation and asking for further information.

Unsafe cylinders must not be used in transportation, says the ICC. If a method can be devised to keep such out of service, dealers may get one year of grace on retesting.

But how can anybody spot the unsafe cylinders without retesting?

•

The day after Christmas an explosion in Santa Barbara, Calif., killed five people, injured many more and damaged property. Newspapers carried streamlined heads saying escaping butane gas caused the accident. Later this was pronounced untrue by the chief of the fire department, according to report.

Most people saw the first scare heads. Few saw the buried denial.

•

Alcohol has been completely washed out of the synthetic rubber program, and all butadiene scheduled for 1946 production will come from petroleum plants, according to the Office of Rubber Reserve.

•

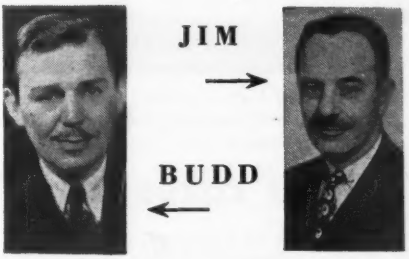
A large internal combusion engine manufacturer states that 75% of orders for heavy duty engines now specify butane or propane equipment. This is almost a startling figure and suggests the vast potential power field that exists for the liquefied petroleum gas industry. (An article on this next month.)

•

Money or time spent on prevention of fires is far more economical than money or time spent on fire extinguishing and the restitution of damage.

•

Jim Donnelly and Budd Mulloy don't look a bit alike. Yet we tried to make our readers think so by running Budd's picture in a story about



Jim. Above, this is definitely corrected.

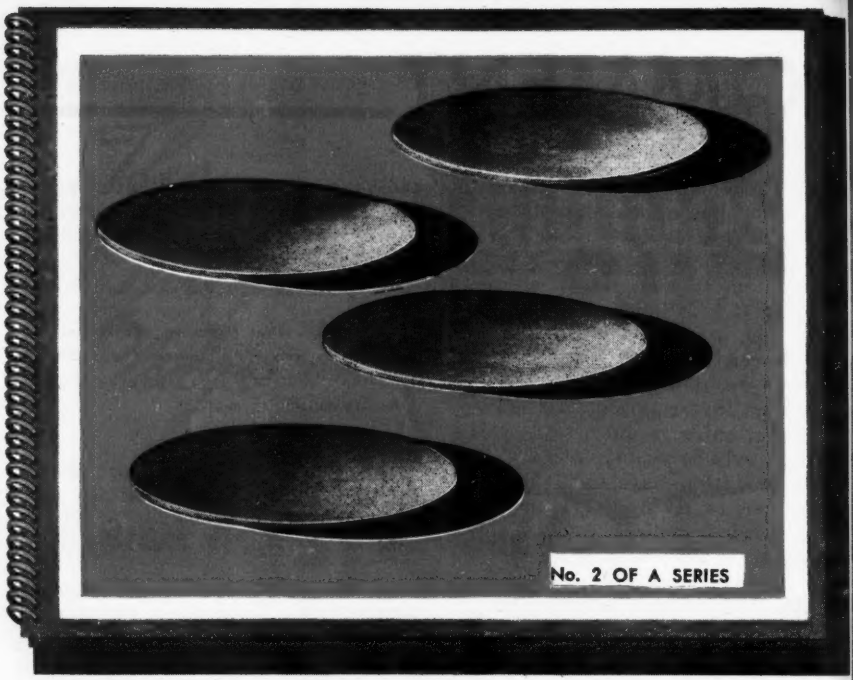
Jim is product supervisor of the Water Heater Division of the A. O. Smith Corp., Milwaukee. Budd sojourns in nearby Chicago and handles Liquefield Petroleum Gas Association publicity for the Selz Organization.

Does this straighten things out?

•

Do something to balance your load. If you can't think of a way, read what one dealer has done along this line. (Page 35).

By Ed.



Heads of all LP-gas cylinders start as discs cut from sheets of metal like those up there. Trageser takes these discs and shapes them skillfully, stamps them clearly, then anneals them for strength. It's the firm that makes the cylinder that makes the difference.

Wheat cakes for LP-gas cylinder heads

THIS picture of LP-gas cylinder-head discs reminds us of wheat cakes and of the fact that "wheats" made by a poor cook look pretty much like "wheats" turned out by a good chef.

All LP-gas cylinders look pretty much alike regardless of who makes them. But there is quite a difference under that finish. Difference in design, strength, wearability and fabrication. Trageser heads are elliptically shaped for greater strength and finer appearance.

The name Trageser assures you of high-quality cylinders.

Trageser's 14 advantages

1 Long experience.

2 I. C. C. and customer's markings clear and deep.

3 No hammer dents from marking tare weight.

4 Wearing rings plug welded for strength—Trageser original.

5 Substantial flanges, ample threads, self-draining.

6 Completely pickled.

7 Paint applied while cylinders are hot; dried under heat.

8 Hy-grade, rust-preventive base paint.

9 Completely dehydrated.

10 Weight controlled. No excess.

11 Rigid Trageser testing, more than I. C. C. compliance.

12 All sizes.

13 Special tank equipment made to specs and design.

14 All new equipment. Most modern plant in U. S. for L P-Gas cylinders.

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Write or Phone for Prices

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TRAGESER COPPER WORKS, INC.
5000 Grand Ave., Maspeth, L.I., N.Y.

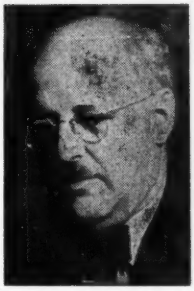
IT'S THE FIRM THAT MAKES THE CYLINDER THAT MAKES THE DIFFERENCE

MAINLY BEYOND THE MAINS

By ELLIOTT TAYLOR, Washington Editor

The Off-Peak Load

If the figures reported by Dr. Frank H. Dotterweich, formerly of the PAW, in which he analyzes the production of liquefied petroleum gases during the closing years of the war, mean anything at all to the layman, they must mean this: The industry will have to set about actively cultivating presently neglected uses for butane and propane, and it will have to look forward to a future in which a more balanced utilization of the gases during winter and summer months can be achieved.



ELLIOTT TAYLOR

The Dotterweich report (December Butane-Propane News, p. 53) covers only four of the five PAW production districts (with the important Western states omitted). But while District 5 figures, had they been compiled, would have had a marked influence on the totals, it is highly unlikely that they would have made any material difference in the significance of the trends that are to be noted. For convenience in making comparisons we have translated the Dotterweich figures into gallons, and reduced these in turn to round numbers.

Thus, in the four districts, we find that the total production of liquefied gas in 1945 was approximately 4.75 billion gallons. This was utilized in the following general proportions: synthetic rubber and chemicals, .5 billion gallons; refinery operations, 3.5 billion gallons; for all other fuel purposes, including commercial, industrial and domestic utilization, .75 billion gallons.

The big increases in production in 1945 over 1944, which saw a gain in output of 27% for the year, and which represented a trebling of the 1943 production, were brought about almost solely under the impetus of wartime demands. In 1945, for instance, the total volume of gases that went into the manufacture of synthetic rubber and chemicals showed an increase of 225% over those made available for the same purposes in 1943.

In view of the termination of hostilities in Europe early in the year, it may appear at first glance that demands would have begun to slow down after May; but as was pointed out in the report, victory on one front caused little deviation in the de-

mand for either high octane gasoline or synthetic rubber, and production was maintained in both of these essentials at an all-out peak until the defeat of the enemy in the Pacific.

The final termination of hostilities, however, presents a different picture and one upon which the PAW, understandably enough, has little disposition to dwell. For the end of the war means the end of a major portion of the high octane program and probably an early scaling down of the demand for liquefied gas going into synthetic rubber and chemical uses. Thus, of the 4.75 billion gallons of output, at least 4 billion represents output going into processes that are bound to be slowed down materially by the end of the war.

It is notable in any industry that once it is geared for volume production the tendancy is to resist any diminution of that volume so long as there appears to be any possible market for the products in question. This tendancy may well be expected to manifest itself in affecting the peacetime stability of liquefied petroleum gas.

There has always been a shortage of tank car equipment to handle heavy movements of butane and propane at certain peak seasons. And while that shortage will no doubt be corrected in part as steel becomes available, it is a condition that has economic as well as material implications. For if all of the tank cars required to move all of the gas at any peak time were kept standing in idleness between those peaks, it is safe to say that the overhead on idle equipment, alone, would be so high as to seriously threaten the economic future of the industry.

Every operator knows that there is no more costly equipment in the world than standby that may justify its existance only at rare intervals and during seasonal peaks. The small propane dealers who found themselves with good cylinders and equipment tied up to summer cottages in New England, while year-round customers clamored for service, learned that lesson the hard way while Order L-86 was in force.

Excess of production, if it occurs, and a shortage of transportation facilities which is almost certain to accompany it, all make for one of the greatest marketing evils that an industry has to face—the dumping of distress merchandise on the market in quantities and at points beyond any normal capacity of that market to absorb it. It causes a situation in which nobody stands to gain, for the consumer is by nature inclined to regard his gas service as worth no more than the lowest price at which he has ever been able to attain it.

The remedy, or a partial remedy, for this undesirable condition is one that rests more in the hands of the retailers, the distributors and dealers in butane and propane than it does with any other single factor in

the industry. That remedy is for every operator, regardless of how small his present business stature may be, to begin immediately and devote himself assiduously to the cultivation of every type and kind of gas consumption that can be used as an off-peak balance to the winter domestic load.

We have heard authentic reports of operators whose winter peak was 6 to 1 over their summer requirements. And we have heard of operators being warned that unless they are able to attain a better balance of winter and summer demand, the producers would refuse to renew their contracts. No producer wants to lose a customer on which he can show a reasonable profit. So it must be that 6 to 1 is just too much of a spread for the supplier to service economically.

This condition has been brought about by the fact that many in the industry have persisted in regarding themselves as primarily, if not exclusively, engaged in the purveying of a household commodity. Gas for cooking, for water heating, space heating and refrigeration they all understand. These have been the obvious avenues of activity that have been thoroughly worked for customers. The field beyond lies waiting but unexplored.

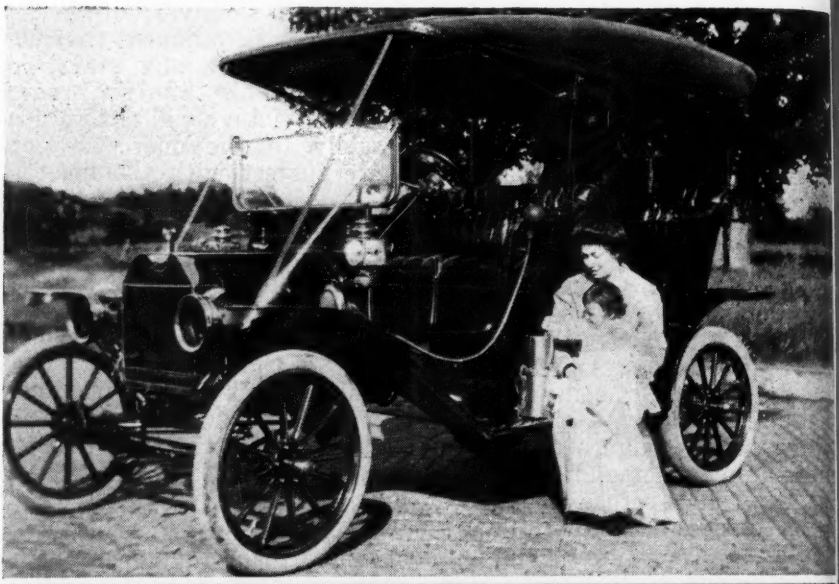
Of course, the domestic load will continue to grow for a time even more rapidly than it has in the past. Like racehorses at the barrier, dealers are fretting impatiently for delivery of the appliances and equipment that will raise the gates and start the race. But this time we predict that the victory will not be necessarily to the one who gets there fustest with the mostest gas ranges.

There could be no sounder procedure right now than for the operator, even while he is waiting for deliveries, to lay plans for a systematic and thorough study of the off-peak gas uses possible in his area. These may range all the way from powering motor transport or bus lines to operating a stationary gas engine turning a buzz saw.

Agricultural uses, alone, most of which reach their peak in the summer when domestic utilization is down, are almost too numerous to be described. Weed burning, flame cultivation of row crops, powering truck and tractor, firing milk house or dairy boilers, chicken incubating and brooding are a few that come to mind.

Add to these the infinite number of small commercial and light industrial enterprises where year-round fuel is required, and the list could be expanded almost endlessly.

Plenty of liquefied gas, which there will be for many years to come, and at prices that will admit of an ever-expanding range of economical uses can be made either the boon or the undoing of the independent dealer. The off-peak load may well prove to be the greatest, single, deciding factor.



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Like the old Model "T", prewar LPG equipment is outmoded by new war-time developments and progress in mass production technique, precision machinery, engineering skill and quality of materials. American LPG Storage and Transport Equipment is the LAST WORD in streamlined construction to meet today's LPG requirements.

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AMERICAN PIPE & STEEL CORPORATION

Manufacturers and Distributors

Alhambra, California

1,100,000,000 Gals. of B-P Gas Marketed in 1945

By G. G. OBERFELL* and R. W. THOMAS**

I. Sales Estimated to Exceed One Billion Gallons

THE TOTAL liquefied petroleum gas sales in 1945, excluding those for the production of automotive and aviation gasoline, and synthetic rubber components, are estimated to be 1,100,000,000 gallons, an increase of 21.4% over 1944, notwithstanding that for several years the liquefied petroleum gas industry has been operating under restrictions applied both to supply and to utilization facilities.

Although practically all government restrictions on liquefied petroleum gas have been removed, the use of this material has not increased as much as would have been expected, after the termination of the war, because of shortages of manpower and materials for fabricating gas consumers' appliances, storage, utilization and transportation equipment.

II. Domestic Use of B-P Gas

The largest single use of liquefied petroleum gas is for household (domestic) purposes, with sales estimated to be 540,000,000 gallons, an increase of 23.2% over 1944. Although

R. W. THOMAS

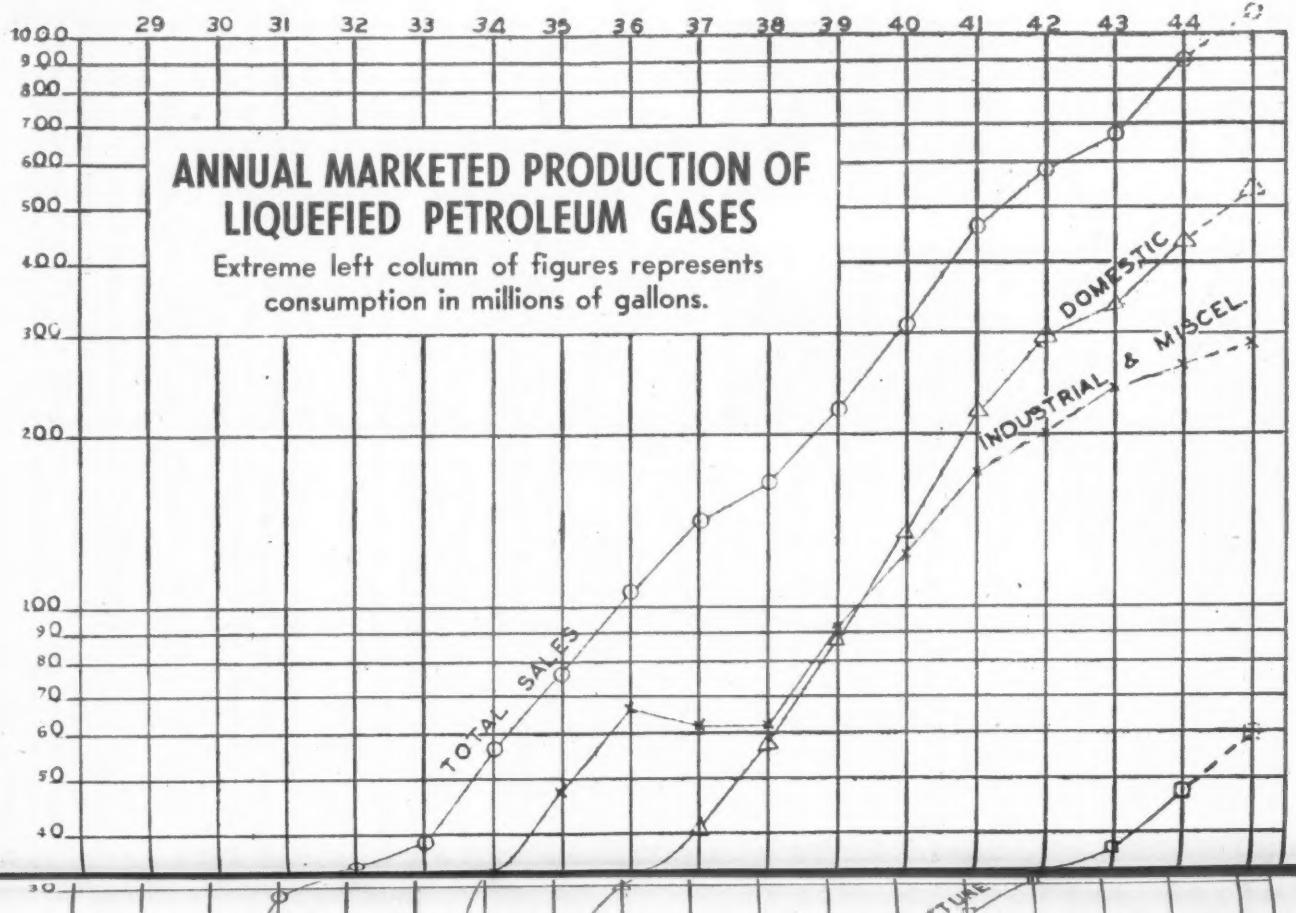
G. G. OBERFELL

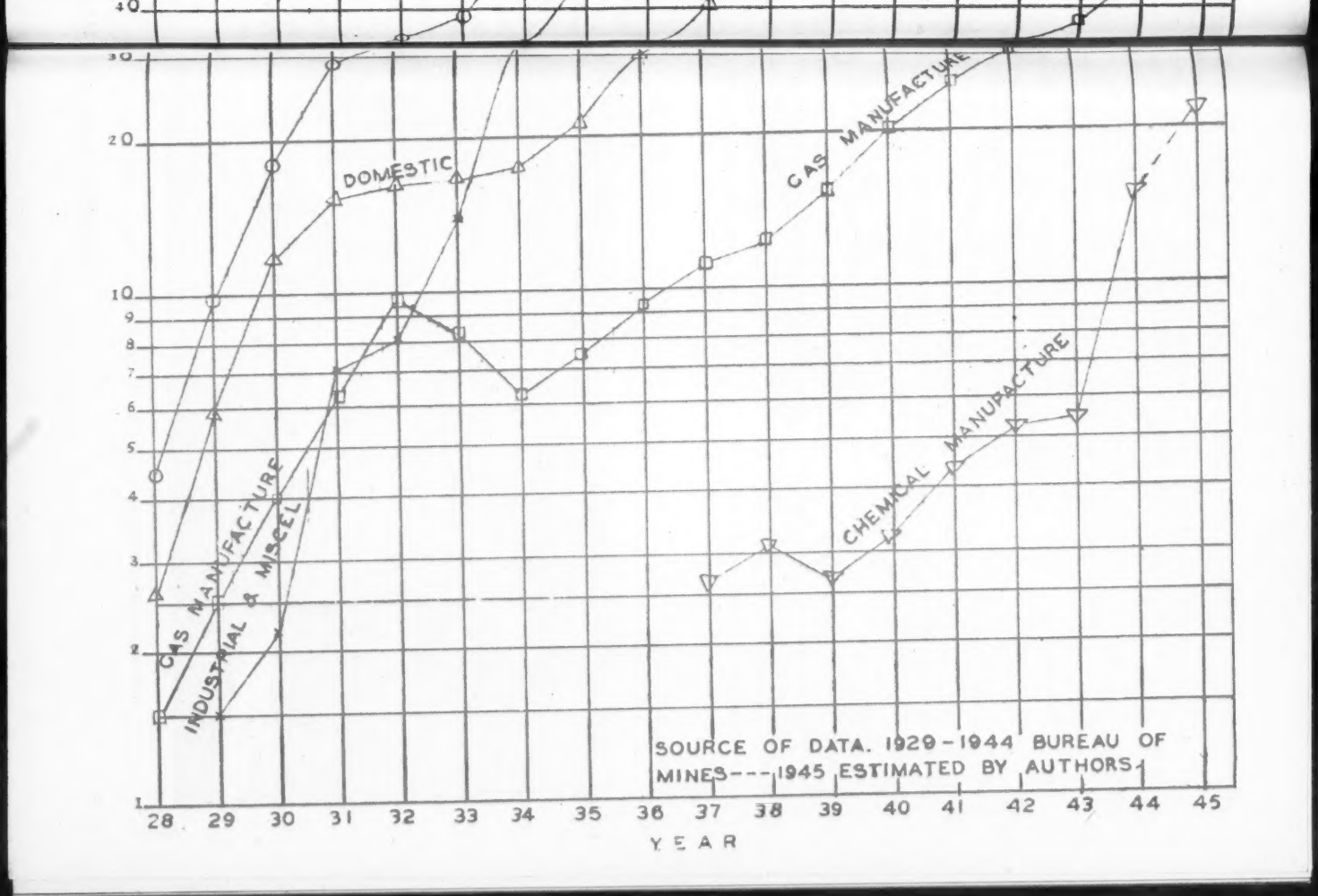
all restrictions on new domestic installations were removed for the last four months of 1945, nevertheless, inability to obtain necessary utilization equipment and appliances as well as manpower has kept new installations at a sub-normal figure. It is estimated that the domestic users as of Dec. 31, 1945, were 2,050,000 representing an increase of 5.1% over 1944.

Because of the wartime restrictions in the form of limitation orders issued by the Federal Government and because of the shortage of materials due to their use in the production of war products, a large pent-up demand for liquefied petroleum gases for use in homes beyond the gas mains now exists. Relatively few new installations were made during the war period since it was necessary to obtain PAW and WPB approval for war-

* Vice president in charge of Research & Development, Phillips Petroleum Co.

** Manager Research and Development, Phillips Petroleum Co.


ANNUAL MARKETED PRODUCTION OF LIQUEFIED PETROLEUM GASES
Extreme left column of figures represents consumption in millions of gallons.
29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44
1000
900
800
700
600
500
400
300
200
100
90
80
70
60
50
40
30
TOTAL SALES
DOMESTIC
INDUSTRIAL & MISCEL.


DOMESTIC
GAS MANUFACTURE
CHEMICAL MANUFACTURE
GAS MANUFACTURE
INDUSTRIAL & MISCEL
SOURCE OF DATA. 1929-1944 BUREAU OF MINES---1945 ESTIMATED BY AUTHORS
YEAR
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45
1 2 3 4 5 6 7 8 9 10 20 30 40

necessary installations, all other installations being prohibited.

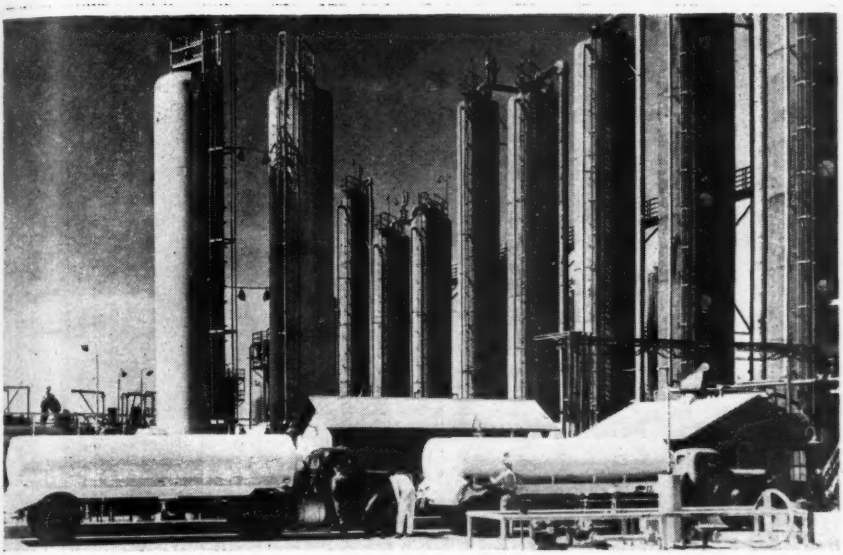
There is an apparent increased tendency to use more propane and less butane. Some installations have been converted from the use of butane to propane. This trend to a greater use of propane in proportion to butane is expected to continue.

To serve more homes efficiently and to better meet competition, many distributors have built new bulk stations and have improved their service organizations. Likewise a large amount of new equipment of all types, including B-P Gas transport trucks, has been ordered.

Many new marketers and distributors have entered the B-P Gas business. Some of these newcomers are just developing their organizations and consequently sold very little in 1945. It is expected that more distributors will enter this field during the coming year. To a great number of uninformed people, the B-P Gas business appears to be an opportunity to "get rich quick"; however, this is not the case. Adequate capital, merchandising experience, a fruitful territory and patience are required for financial success. It will be necessary for the industry to maintain constant vigilance at all times, and especially during this period of rapid growth, to insure the maximum safety, both from the standpoint of the consumer and the distributor.

It is interesting to note that a large amount of the increase in domestic consumption during the past year was due to greater use by present consumers. As new appliances become available, it is expected that the aver-

Bulk plant for distribution of propane in cylinders and tank trucks.



Production and loading facilities at a Texas B-P Gas plant.

age consumption by the domestic consumers will further increase beyond 1945 levels. With the increased standard of living, it is reasonable to expect greater use of liquefied petroleum gases than heretofore, especially through the use of more gas-burning appliances in the average home.

III. Industrial Use

It is estimated that the quantity used in 1945 for industrial fuel, internal combustion engine fuel and miscellaneous uses was 280,000,000 gallons, which represents an increase of 4.8% over 1944 uses. While the direct motor fuel use has increased over the 1944 consumption, the quantity of B-P Gas used for other industrial purposes did not materially increase, because of reduced industrial plant activities during the period of reconversion.

IV. Gas Manufacturing Use

The quantity of utility gases transmitted in gas mains has shown a consistent increase during the past several years. To meet this increased consumption has taxed the resources of many utility companies. Although utilities in general have endeavored to keep their winter house heating peak demand at a reasonable level, in a great number of cases these peak demands have reached such proportions that the installed equipment is no longer capable of supplying the required gas. To increase their gas producing capacity in a minimum length of time and still secure maximum flexibility at reasonable costs, a number of utilities have installed liquefied petroleum gas facilities to produce supplemental gas for these peak periods.

TABLE I. MARKETED PRODUCTION OF LIQUEFIED PETROLEUM GAS

	Total Sales		Distribution—Gallons Per Year							
Year	Gallons Per Year	Per Cent Increase Over Previous Year	Domestic	Per Cent Increase Over Previous Year	Industrial and Miscellaneous	Per Cent Increase Over Previous Year	Gas Manufacturing	Per Cent Increase Over Previous Year	Chemical Manufacturing (b)	Per Cent Increase Over Previous Year
1922	222,641									
1923	276,863	24.4								
1924	376,488	36.0	Sale of liquefied petroleum gas							
1925	403,674	7.2	confined primarily to bottled							
1926	465,085	15.2	gas business prior to 1928							
1927	1,091,005	134.6								
1928	4,522,899	314.6	2,600,000	....	400,000	....	1,500,000	....		
1929	9,930,964	119.6	5,900,000	126.9	1,500,000	275.0	2,500,000	66.7		
1930	18,017,347	81.4	11,800,000	100.0	2,200,000	46.7	4,000,000	60.0		
1931	28,769,576	59.7	15,294,648	29.6	7,171,686	226.0	6,303,242	57.6		
1932	34,114,767	18.6	16,244,103	6.2	8,167,194	13.9	9,703,470	53.9		
1933	38,931,008	14.1	16,625,588	2.3	13,987,095	71.3	8,318,325	—14.3		
1934	56,427,000	44.9	17,681,000	6.3	32,448,000	132.0	6,298,000	—24.3		
1935	76,855,000	36.2	21,380,000	20.9	47,894,000	47.6	7,581,000	20.4		
1936	106,652,000	38.8	30,014,000	40.4	67,267,000	40.4	9,371,000	23.6		
1937	141,400,000	32.6	40,823,000	36.0	62,610,000	*....	11,175,000	19.3	26,792,000	
1938	165,201,000	16.8	57,832,000	41.7	62,694,000	0.0	12,386,000	10.8	32,299,000	20.1
1939	223,580,000	35.3	87,530,000	51.4	93,723,000	49.4	15,435,000	24.6	—26,892,000	—16.7
1940	313,456,000	40.2	134,018,000	53.1	124,482,000	34.5	20,285,000	31.4	34,671,000	29.0
1941	462,852,000	47.7	220,722,000	64.7	172,669,000	38.6	25,255,000	24.5	44,206,000	27.5
1942	585,440,000	26.5	299,559,000	35.7	201,477,000	16.7	31,366,000	24.2	53,038,000	20.0
1943	675,233,000	15.3	339,380,000	13.3	242,978,000	20.6	37,519,000	19.6	55,356,000	4.4
1944	905,600,000	34.1	438,552,000	29.2	267,295,000	10.0	47,768,000	27.4	151,985,000	175.0
1945	1,100,000,000	21.4	549,000,000	23.2	280,000,000	4.8	60,000,000	25.6	220,000,000	44.8

* Not comparable due to segregation of chemical manufacturing.
(b) See Section V for definition of chemical uses.

Remarks: In the above table "Total Sales" for all years except 1945 were obtained from U. S. Bureau of Mines reports. "Distribution" for the years 1931 to 1944, inclusive, was obtained from the same source. All other volumes are estimated by the writer. The total sales volume includes all liquefied petroleum gases (propane, butane, and propane-butane mixtures) when sold as such. Until 1944 it included pentane sales when sold for purposes other than motor fuel blending. It does not include butane when blended with heavier petroleum fractions for motor fuel purposes. Inter-company sales transactions such as purchases of liquefied petroleum gases by one company from other companies and then resold as liquefied petroleum gases, have been eliminated in order to avoid duplication of sales figures. The data do not reflect sales of liquefied petroleum gases used directly by the producer at the point of production, for fuel, polymerization, solvent de-waxing, etc. Neither do the figures include sales of hydrocarbons to plants manufacturing synthetic rubber or aviation gasoline or their components.

In addition to the liquefied petroleum gas used for peak-load shaving, a large quantity is distributed undiluted or diluted to various heating values. The sum used for peak-load shaving and for distribution in pipe lines has been estimated for 1945 as 60,000,000 gallons which represents an increase of 25.6% over that consumed in 1944.

V. Chemical Uses and Other Demands

The quantity of liquefied petroleum gas used in the chemical manufacturing industry depends to a great extent upon the definition of chemical uses. After excluding the C_3 and C_4 hydrocarbons used for the production of aviation and automotive gasolines and for the production of synthetic rubber components, which are large uses of propane and butanes, the quantity consumed in the production of chemicals is still a sizeable amount of the marketed liquefied petroleum gases. It was estimated that 220,000,000 gallons of C_3 and C_4 hydrocarbons were used for such chemical manufacture during 1945. This is an increase of 44.8% over 1944 consumption.

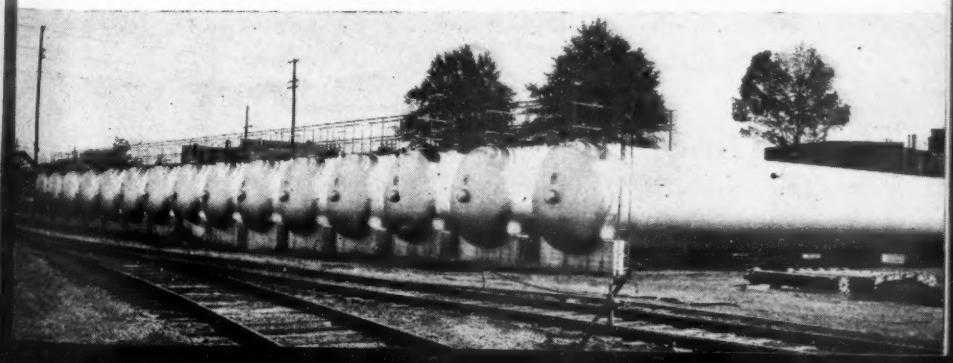
Since the quality of motor fuel has returned to its prewar level and in some cases increased beyond this point, the quantity of B-P Gas, especially butanes, going into motor fuel has increased to a level almost equal to its prewar amount. Likewise, since a number of alkylation units are operating to produce motor fuel alkylate, sizeable amounts of C_4 hydrocarbons are required in the form of isobutane and butylenes.

Although the butadiene plants using alcohol as feed have been shut down, most of the plants producing butadiene from petroleum are operating near or above their designed capacity. Therefore, the demand for normal butane and butylenes for the production of butadiene has not changed with the cessation of hostilities, nor does it appear that this demand will decrease materially in the immediate future. Likewise, the demand for propane used in the production of ethylene for styrene, another synthetic rubber component, is not expected to decrease appreciably. Styrene is also used for the production of plastics. These uses are not included under chemical manufacturing in Table 1.

VI. Industry Activities in 1945

During 1945 the liquefied petroleum gas industry was very active in promoting greater and more uniform safety regulations. The Liquefied Petroleum Gas Association (LPGA) continued to spend considerable effort in suggesting revisions of NBFU Pamphlet No. 58—"Standards of The National Board of Fire Underwriters for the Design, Installation and Construc-

Tanks for a propane storage system under construction by a gas utility.



tion of Containers and Pertinent Equipment for the Storage and Handling of Liquefied Petroleum Gases as Recommended by the National Fire Protection Associations." This work is very important since these standards serve as the basis of the laws, rules and regulations of most regulatory bodies.

In an effort to better serve the liquefied petroleum gas industry, and especially the distributor, the LPGA is in the process of being streamlined for enlarged activities.

The Committee on Gases, of the National Fire Protection Association, has been actively studying safety relief valve area requirements for liquefied petroleum gas storage tanks.

With the end of the Japanese war, the industry advisory committees, the permanent liquefied petroleum gas Sub-Committees of the Natural Gas and Natural Gasoline Committees and the Special LP-Gas Joint Survey Sub-Committee appointed by the Petroleum Administration for War were dissolved, but not, however, before the latter submitted to PAW a supply and demand estimate for the year 1945.

VII. Supply of Liquefied Petroleum Gas

As a result of the large requirement for C_3 and C_4 hydrocarbons during the war for the production of aviation gasoline and synthetic rubber components, numerous facilities to produce and separate these hydrocarbons were installed throughout the United States. As a result, the industry's ability to produce and separate liquefied petroleum gases is greater now than at any other single time in our history. The quantity of C_3 and C_4 hydrocarbons included as liquefied petroleum gases, and reported in this estimate, was considerably less than 10% of the estimated total potentially available quantity of C_3 and C_4 hydrocarbons which could be made available at a price from gas processed by natural gasoline plants and at refineries from crude oil.

VIII. New Uses

One of the most interesting in the recent developments has been the use of B-P Gas for flame cultivation (weed destruction, particularly in row crops). Because of the economic savings obtained by flame cultivation as compared to other methods of weeding, this method has aroused a great deal of interest in the agricultural industry, particularly in the south.

Of interest is the continued increase in the use of high purity propane (free of unsaturates—propylene and butylenes) for the production of hydrogen by dehydrogenation processes. The hydrogen in many cases is then used for hydrogenation of vegetable oils and animal fats for the preparation of cooking fats, salad oils and soaps.

The use of this gas by industrial plants for many precise heating operations such as controlled atmosphere annnealing with radiant tube furnaces, flame hardening and cutting, continued to expand.

Dealer Builds Summer Sales To Gain

A Balanced Load

By PAUL LADY

BUTANE and propane dealers are beginning to awaken to the importance of developing their gas loads in a manner that will give them a better balance between winter and summer than has been possible when concentrating primarily on domestic accounts.

Now they are turning to industrial and commercial installations, grain and fruit drying, cotton ginning and flame weeding, water pumping and other internal combustion engine uses.

And in so doing they not only augment their own incomes substantially, and keep their sales and service crews busy all the year, but they help to satisfy an increasing demand of fuel producers for all-year-round markets in order that refineries and natural gasoline plants can strike a better balance between production and sales, month by month, and reduce the problems of summer storage to care for winter peaks.

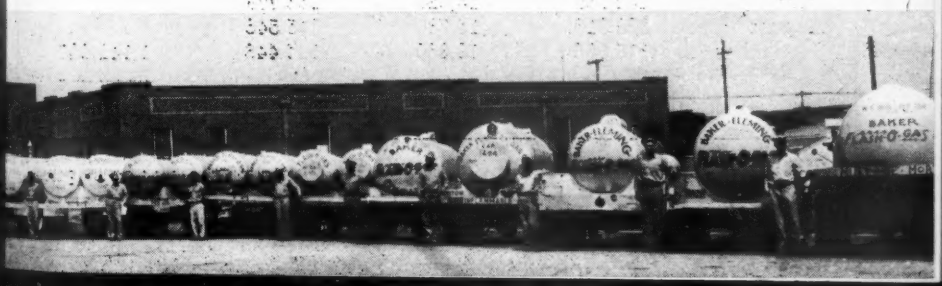
A good illustration of what can be done, and what is being done, in balancing summer and winter loads is found in the activities of the Baker-Fleming Flash-O-Gas Co., operating through northwest Texas.

So successful has been the merchandising program of this organization along this line that its gas sales have skyrocketed every year. Taking records dating from 1941 as evidence, one finds the total gas sales for these years to be:

1941	295,000 gals.
1942	359,000 gals.
1943	895,000 gals.
1944	2,167,000 gals.
1945	3,143,842 gals.

Good organization, a continued desire to bring a high degree of improved merchandising policies to the B-P Gas business, and an effort to branch out in the utilization of this gas has, no doubt, brought about results that are ex-

Part of the Baker-Fleming delivery truck fleet that distributes gas to the farmers in the great plains region of west Texas.



tremely important to Baker-Fleming and to the industry. The records show that the firm has reached a high degree of efficiency in the important matter of balancing its fuel load.

Fuel sales records for the year 1944 show a remarkable uniformity in volume, month by month, throughout the entire year. These figures reveal that definite thought has been given to a program that would push gas sales in the summer as well as in the winter. The merit of this plan is evidenced in that the highest gallonage sales were made in August—usually considered by most dealers as one of the poor gas months of the year. A comparison of sales for the first six months of the year (996,252 gals.) with those of the last six months (1,172,225 gals.) shows a difference of only 176,000 gals.

Comparing the summer season against the winter, Mr. Baker estimates that sales fall in the following divisions: Summer—75% for irrigation; 25% for domestic; Winter—75% domestic (includes schools); 10% industrial (includes cotton gins); 15% irrigation.

Even a closer balancing of sales is shown when the fall and winter months are compared with the spring and summer, as the figures in Table 1 for 1944 testify.

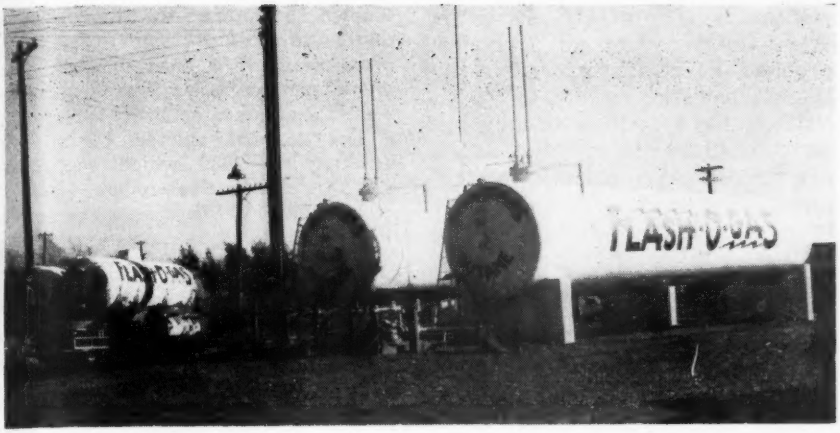
In 1945 the monthly sales were better balanced than in 1944, showing a total volume of 3,143,842, almost 1,000,000 gals. more than in 1944.

Dividing last year as set out in Table 1, 1945 showed the period from October through March to total 1,429,029, and April through September, 1,714,813.

However, April, with 320,431 gals. sold, was the heaviest month last year, the heating and pumping seasons overlapping somewhat.

TABLE 1. 1944 GALLONAGE

Mo.	*Butane*	*Propane*	*Total*	*6 Mo. Totals*
		Fall-Winter		
January	113,536	42,806	156,342	
February	114,977	51,231	166,208	
March	121,640	46,227	167,867	
October	67,156	38,720	105,876	
November	109,410	55,360	165,770	
December	168,014	95,824	263,838	1,025,901
		Spring-Summer		
April	178,824	35,277	214,101	
May	161,091	21,815	182,906	
June	94,914	13,915	108,829	
July	142,159	14,620	156,779	
August	329,816	15,730	345,546	
September	115,086	19,360	134,446	1,142,607
			Grand Total	2,168,508



Fuel storage at the Plainview plant. These are two 18,000-gal. tanks used for bulk storage, bottle filling operations and truck fuel storage.

A part of this concerted effort to push summer gas sales has resulted in a policy which is beneficial in many ways to the company and, if it is followed by other dealers, can be a decided benefit to the liquefied petroleum gas industry as a whole. This plan calls for the sale of large tanks to users.

It is never a matter of "forcing" a larger tank on a customer, but if his needs show such to be advisable, the salesman points out the advantages of a larger storage vessel.

The size that is being pushed by this firm has a capacity of 1000 gals. It is an aboveground tank built to propane specifications. The other size tanks available are 500 and 250 gals.

It has been found that for the average farmer a 1000-gal. tank is not too large and in most cases can be a decided advantage. Under this present sales plan the percentages of various sized tanks sold out of every 100 are shown in Table 2.

TABLE 2. CUSTOMER TANK SIZES

Size	*Number*	*Price of Gas*
1000 gal.	50	Base price
500 gal.	35	Up 1 cent
250 gal.	15	Up 1½ cents

The advantages to the customer are numerous. He gets his gas for a cent or a cent and a half less per gallon. He is always sure of a steady gas supply. He can hook onto this system in the future and use the gas for many needs without fear of running low. He has a system that will last him indefinitely.

It must be remembered that the sale of a 1000-gal. tank is not practical unless the farmer's uses justify the expense. In the area where Baker-Fleming operates, B-P Gas for irrigation power has been successfully merchandised and the demand for fuel during the summer

months is very great. As almost every farmer has an irrigation problem, he is a prospect for this type of power.

Thus, the system is usually sold for immediate use as a fuel source for the domestic load and for irrigation power. At the time of sale it is pointed out that the tank may later be used as a fuel supply for brooding, for dairy sterilization, truck and tractor fuel and other applications.

The sale of large tanks has a decided advantage for the dealer. Baker-Fleming has found that it keeps trucks rolling full-time, helps even the fuel load, and automatically provides reserve storage in many areas, which may be filled in slack periods in preparation for busy months.

The year of 1946 will be important for Baker - Fleming Flash - O - Gas Co., as it is its 10th anniversary. Known throughout the Southwest as distributors of "Flash-O-Gas," this organization has been extending its operations over a large area in northwest Texas since early in 1936.

The concern started business in Lockney in 1936 which was headquarters until September, 1942, at which time Robin Baker moved to Plainview which has since been headquarters. In 1939 J. C. Fleming moved to Lubbock and has operated the business there since that date.

Other main plants are located at Tahoka, Morton and Muleshoe. Each of these plants has bulk storage sufficiently large to fill bulk delivery trucks. Propane bottle filling plants are maintained at Lockney, Floydada, Earth, Farwell, Enochs, Whiteface and Levelland.

The large fleet of trucks that work out of these various plants consists of two butane and two propane transport units, each with a capacity of 3000 gals.; five propane delivery units of 1200 gals., each; and seven

Trailer built especially for the transportation of tanks. Tank is hoisted by pulley, pulled to customer's location and lowered to ground. It is a fast, easy method of handling large tanks.

View of new 1000-gal. storage showing location to dwelling. Vapor line runs to house. Liquid line extends to pumphouse 900 ft. in opposite direction, where fuel is vaporized for use on converted pumping engine.

butane delivery units of 1200 gals., each.

Showrooms for appliance sales are maintained at Plainview, Lubbock and Tahoka.

The main plant and headquarters of Baker-Fleming at Plainview is by far the largest operation. Still, it is only half the size it will be when the present expansion plan is completed. Bulk storage at this plant includes two 18,000-gal. storage tanks, one butane and one propane. Bottle filling facilities are available, also.

A large, tile building has been erected recently and is now in use in Plainview. It houses offices and showroom in one half and a well-equipped garage for fleet service and carburetion installation in the other half.

Employes now total 50, some of whom have been with the company for many years, while a large number are new. To keep old and new employes acquainted with company policies and developments and to teach them service, sales and safety methods, a school is held once a month which all employes attend.

As a part of the expansion plan there is an effort to direct the employes toward specialization. Some go into sales and service, some gas delivery, some office sales and others are trained to make carburetion installations on trucks, tractors and pumping engines. An effort is made to place men where they will be happy and do the best job.

One of the important divisions of the Baker-Fleming organization is the carburetion end. Butane-propane carburetion for trucks, tractors and water pumping engines has been pushed in this territory by this firm for several years with the result that a large part of their gas load now goes for this purpose.

Four mechanics are employed in the garage division at Plainview. As a matter of routine they overhaul and repair the fleet of company trucks; however, most of their time is employed in equipping irrigation motors with butane carburetion units. Many trucks and tractors are also equipped in this shop, although the irrigation units predominate.

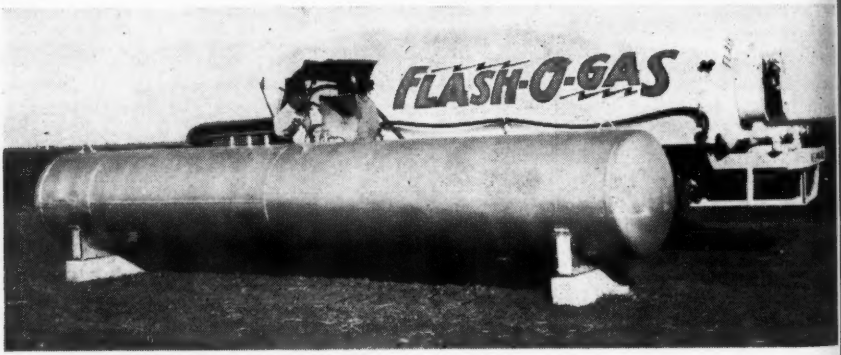
New showroom and service store opened recently at Lubbock, Texas.

Mr. Baker, who has been the "spark plug" behind the carburetion business, states that they definitely plan for carburetion to be a big factor in their business. They are constantly training men to become carburetion experts in order that they may take over the new carburetion shops that are to be opened in the various Baker-Fleming plants.

The emphasis on carburetion for irrigation engines has already proven a sound policy as the organization now serves gas to over 200 of these. Mr. Baker expects an increase of over 100% in this business, alone, in 1946.

As distributor for Roadmaster carburetors over a large area of west Texas, the Baker-Fleming company does a big business in both retail and wholesale carburetion sales. They now have 16 of their own trucks and six pick-ups operating on this equipment, a total of 22 units.

From the beginning of their operations Baker-Fleming has tried to have a complete program of sales and service, a program that calls for the sale of bottles or tanks, whichever the customer prefers; butane or propane, according to his needs and desires. With this, of course, goes a complete program of sales, installation and service of appliances. And the emphasis is always placed on the slogan, "Service doesn't end with the sale."



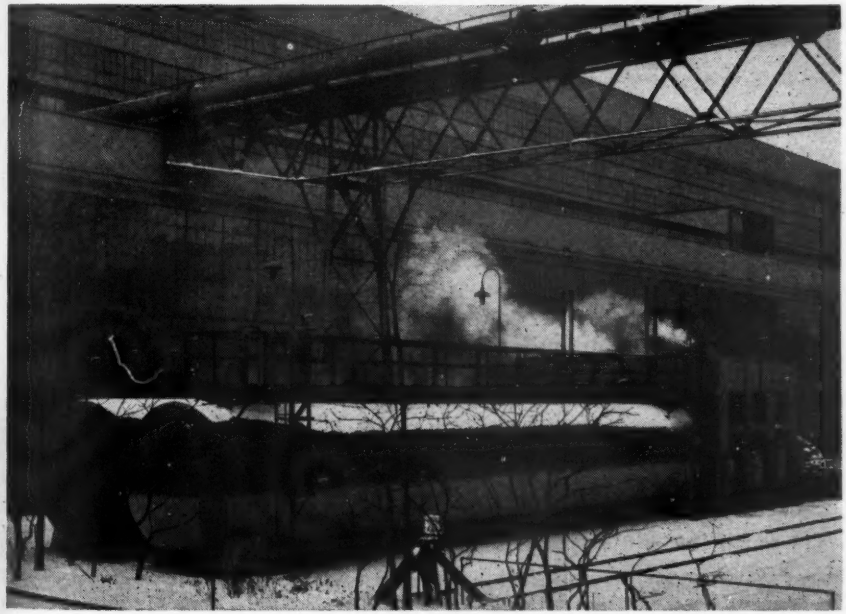
Filling a newly installed 1000-gal. tank on a farm near Plainview.

Propane Saves Ford Motor Company From Shut-Down During Coal Strike

HOW propane gas "saved the day" for the Ford Motor Co., allowing the world's largest industrial plant at the River Rouge to continue production when the government placed an embargo on coal shipments during the recent coal strike, has been revealed by M. L. Bricker, vice president in charge of manufacturing.

By shutting down coke ovens to half speed to produce only 50,000 cubic feet of coke oven gas, which was mixed with propane gas, the Ford Motor Co. doubled the life of its reserve stock pile of coal.

Propane was received from Oklahoma and Texas, with some being supplied by a refinery at Toledo. It was delivered in 10,000 gallon tank cars and transferred to a 30,000 gallon storage tank. Forty



The propane gas tanks in which was stored liquid gas which "saved the day" for the Ford Motor Co. during the recent coal embargo.

Coke ovens of the Ford River Rouge plant. Smoke pours from the quenching tower at the right.

tank cars of propane were received at the Rouge plant between Oct. 15 and Nov. 2.

Simply by heating with steam, the liquefied gas was vaporized and mixed with coke oven gas.

It is not practical to use propane in year-around operations, according to plant officials, because of the low cost at which coke oven gas can be manufactured at the Rouge.

"Fair Trade" Adjustments Will Aid New Undertakings

The "fair trade" adjustment provisions of the General Maximum Price Regulation — the regulation which in May, 1942, froze prices of most commodities and services at their March, 1942, "highs"—have been somewhat broadened, the Office of Price Administration has said. The action became effective Dec. 17.

Formerly, the adjustment provision required that the applicant for adjustment establish that he himself was required to sell the commodity at the Fair Trade price in March, 1942. This prohibited persons who did not sell the commodity or were not in business in March, 1942, from applying for an adjustment.

To correct this situation, the section governing adjustments has been changed to permit any seller to apply for adjustment up to the Fair Trade price if the commodity was required to be sold at a Fair Trade price in March, 1942, regardless of whether or not the applicant sold the commodity at that time.

PUMP PROBLEMS

Unloading Tank Cars

By R. STANLEY SMITH

Manager, Smith Precision Products Co., South Pasadena, Calif.

BUTANE-PROPANE *News* **has, during the past year, been particularly active in expanding the supply of technical and non-technical engineering aid for the benefit of its readers.**

A new article contributed by R. Stanley Smith in the present issue is particularly directed to the problem of unloading butane and propane tank cars.

Mr. Smith is manager of Smith Precision Products Co., South Pasadena, Calif., which manufactures the Smith Butane-Propane Pump. He has devoted many years to the particular problems involved in handling butane and propane and is well qualified to write authoritatively on this subject.—Editor.

IN the several articles which have preceded this one, under the title of "Pump Problems," we have given particular attention to examples which would help to make clear the general physical principles involved in the pumping of butane and propane. This plan has been followed because with a basic understanding of the practical differences between pumping B-P Gas and that of pumping water or oil, a better analysis of existing plant troubles can be made, and new plant layouts can be developed with greater certainty of success.

The present article covers pumping equipment and layout for unloading railroad tank cars, but in addition to the brief description of the plants here sketched, certain basic items previously covered must not be overlooked, since these are important to the success of any butane or propane pump installation. Three of these may be briefly summarized as follows:

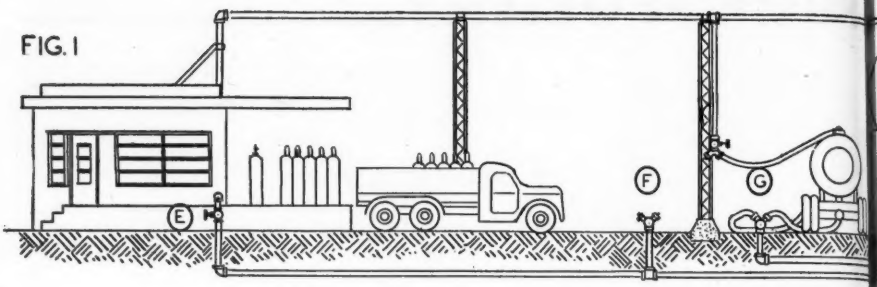
1. We must be sure that the installation is so that the pump will be filled with liquid, and that the piping is so arranged that the pump section cannot constitute in itself a vapor trap.

2. We must see to it that a supply of liquid will be carried to the pump by gravity flow alone in sufficient volume to equal the pump capacity. There must be no dependence on pump "suction" to accomplish this.

3. We must limit the required outlet differential pressure to as little as is consistent with practical performance. In other words, balance vapor pressures where possible, provide reasonable size outlet lines and fittings and do not incur unnecessary back pressure resistence to add to the power cost and general pump wear expense.

Fig. 1 shows a plant of a California operator who uses a positive displacement rotary gear pump to handle propane from tank cars to storage tanks C and D. This same pump is also used to serve his bottling plant E, as well as to load or

FIG. 1



unload tank trucks in positions F and G. The sketch shows a single pump installation, but a second standby pump has been added with a valve arrangement whereby either pump may be cut in to perform any of the several operations, or whereby one pump may be used for unloading, while the second pump is independently handling the bottling plant or tank truck loading. This second pump offers an important service safeguard since either pump alone can be made to handle every requirement in case of emergency.

Unloading Procedure

When the railroad tank car is spotted for unloading, liquid hose lines 1 and 2 are connected to a Y fitting 3 attached to valve 4. Both 2-in. tank car liquid lines are used because much higher transfer speed is found possible under these conditions, and there is also less danger of closing the tank car excess flow valves.

However, the flow through a rotary pump is smooth and free from impulses and this aids materially in avoiding this particular difficulty. Vapor exchange hose 5 is connected to valve 6 on vapor return pipe line 7. In this installation, the vapor line was kept elevated to a height just above the top of the storage tanks. This is done to avoid added vapor line pressure through fluid head which can develop when depressed lines become flooded. The elevated vapor line to the storage tanks is of larger size than usual, since it is also used in this case to handle the by-pass flow from the pump.

For delivery of propane from tank car B to storage tank C, operation is as follows: Opening valve 4 admits fluid to fluid line 8. Valve 9 is closed and fluid flows through open valve 10. Valves 11 and 12 are closed so flow passes through strainer 13 into pump A, from which flow is through open valves 14, 15, and 16. A spring loaded by-pass valve 17 is arranged to discharge through line 18, back through vapor line 7 either to the tank car or to storage tanks C or D. A hand by-pass valve 19 is placed to provide a simple release of air or gas from the pump line section in case of vapor lock.

After making connections as

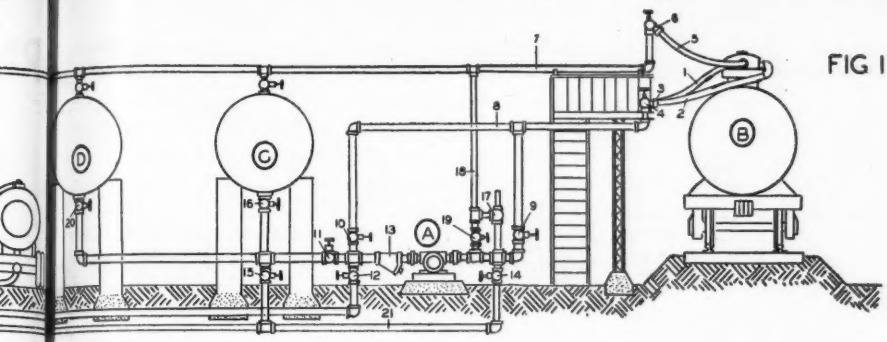


FIG 1

above described and starting the pump, valve 19 is closed, and very rapid transfer takes place in accordance with the ability of the pump to perform. In this layout, with ample pipe sizes, and with the pump close to both tank car and storage tanks, and with plenty of inlet head or height of liquid above the pump, all conditions are exceptionally favorable.

Opening valve 20 and closing valve 16, carries the flow to storage tank D. As can be readily seen, the flow may be reversed to withdraw liquid from C or D and discharge to R.R. tank car by opening valve 11 and 9, and closing valve 10, 14, and 15. Or valve 14 may be opened and valve 9 closed and discharge from storage tank C and D be made either to the truck loading position F or to the bottling plant E.

Provision is also made to unload truck and trailer transports, with double hoses as shown at station G. Correct valving for these and other operations will be apparent by referring to the drawing above.

While the layout Fig. 1 involves quite a considerable number of valves, it results in great flexibility of operation and makes it unnecessary to reverse the direction of the pump operation.

Reverse Switch for Pump

A somewhat simpler layout with fewer control valves is outlined in Fig. 2. In this plan a reverse switch is provided to operate the pump in either direction for handling into and out of storage. The single main outlet line 21 carries high pressure butane or propane to the tank truck loading rack, or to the bottling plant as may be required. All incoming fluid passes through a single strainer 22. However, the pump is protected from foreign matter in the reverse direction of flow by a settling pot 23 which is merely a pipe extension as shown with a drain plug for occasional cleaning. This pot catches all heavy foreign matter such as weld shots which might otherwise be swept in from the tank bottom under heavy flows.

Fig. 3 is an outline drawing showing another plant in which storage tank C was initially erected

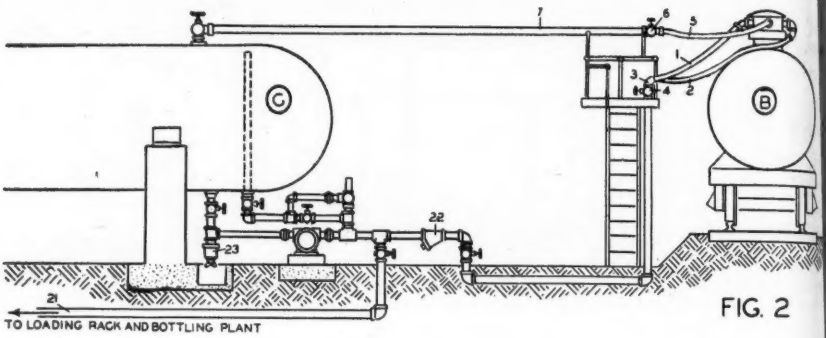
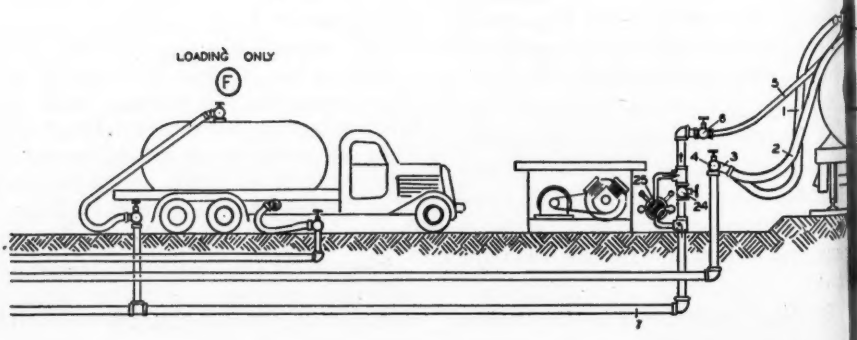


FIG. 2

about 150 feet from the R.R. siding. Since at the time of pump installation there was no anticipation of future tank car deliveries, the pump was correctly positioned as shown, as close as possible to the storage tank and adjacent to the bottling plant. In later planning for tank car unloading, a separate pump located close to the siding was definitely indicated. However, a vapor compressor was already available at this plant, so it was decided to make use of this equipment to establish an adequate pressure differential to feed the pump under positive pressure, in spite of the long suction line. In operation, tank car B was connected with two hose lines 1 and 2 from both liquid outlets to a Y fitting 3 attached to valve 4. Vapor hose 5 was connected to the vapor return line through valve 6. The vapor compressor was connected as shown on either side of valve 24. A 4-way

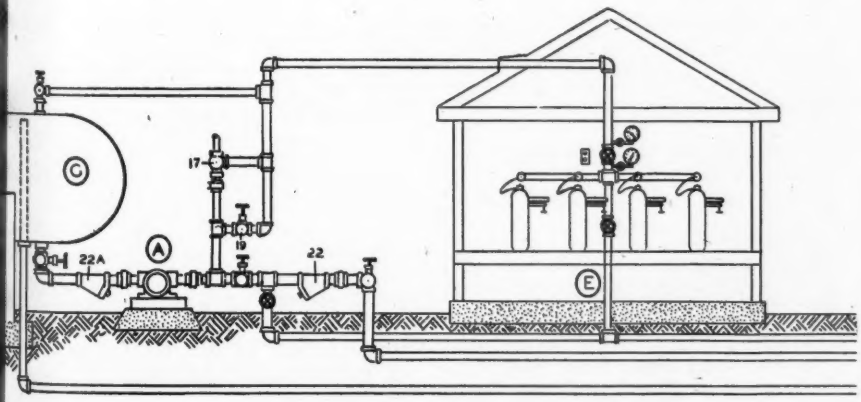


valve 25 allows for reversal of the compressor suction and discharge outlets as shown. With valve 24 closed, and valve 25 positioned as shown, the vapor compressor was started. As indicated by arrows, vapor is withdrawn through vapor line 7 from the storage tank C and discharged into R.R. tank B. The compressor alone is run until a differential pressure of approximately 10 lbs. is reached, after which the pump A at the storage tank is started. Even through this long line, the flow was very rapid and it was found that the speed of transfer more than doubled that which was obtainable with either pump or compressor operating separately.

Other features of this layout will be apparent. Two strainers 22 and 22A protect the pump in either direction of flow. The pump motor is provided with a reversible switch for operation in either direction, for pumping in and out. Hand valve 19 is useful to permit the rapid clearing of all air or gas accumulation in pump section when necessary. By-pass valve 17 protects against over pressure in case of operating pump against closed valves. A hand valve shown above the bottling manifold, gives control of manifold pressure differential and is used for speed control similar to that incorporated in the bottling plant layouts shown in the June and November issues of Butane-Propane News.

After all liquid is removed from the tank car B, the reversal of valve 25 will withdraw remaining vapor which is compressed and delivered to the storage tank.

The sketches shown in this article are diagrammatic and are intended merely to convey the general plan of operation. Many additional features for operating convenience and safety should be provided, such as an adequate number of pressure gauge outlets, blow down connections, and pressure relief valves to suit the requirements of each individual plant.



Accident Causes Are Analyzed

A SURVEY of accidents occurring in the butane industry in Texas between 1938 and December, 1944, has been made by Cameron S. Orr, safety engineer with the Service Mutual Insurance Co., Waco, Texas. Results are published in the December issue of the "Texas Butane News." In analyzing the causes of accidents, Mr. Orr advises that:

1. **Dealers—unsafe practices caused 65% of all accidents.**
2. **Employes—due to lack of necessary precaution caused 35% of all accidents.**

Investigation proved the cause of accidents in item No. 1 to be—

(a) **Lack of proper instructions and knowledge of the employes.**

(b) **Not following the Railroad Commission's code requirements.**

Under item No. 2, the main cause for accidents is—

(a) **Lack of respect for merchandise handled.**

(b) **Lack of proper instructions.**

He then states that it would be an excellent idea if each and every dealer would thoroughly check his operations to see how many of the following suggestions are actually in practice:

Suggested Safe Practices

(1) Proper selection and training of every employe.

(2) Each employe should be required to study and be familiar with the state code.

(3) No system should be serviced for the first time until the system and appliances have been inspected by a qualifie person for code compliance.

(4) Dealers' bulk storage tank should be of the approved typ and provided with prope markings, showing manufac turer's name, capacity, dat last inspected, and the saf working pressure.

(5) All containers should be prop erly grounded.

Trucks

(6) Where butane gas is being used for motive fuel, the lin running from tank to carbur etor should be incased with rubber hose, to prevent exces sive vibration and chances o rupture.

(7) Each truck should be provide with sufficient number o wooden blocks to be used whe stopping, to prevent truc from moving during loading and unloading operations.

(8) Adequate fire extinguisher should be provided on each truck so located that they ca be available at all times.

(9) All trucks should be provide with electric pot torches.

(10) All trucks should be provide with adequate ground chains.

D. H. Jones and T. H. Ward Buy Arkansas Liquefied Gas Co.

The butane business of the Ar kansas Liquefied Gas Co., Boonevill Ark., has been sold by H. B. Griffey to D. H. Jones and T. H. Ward, who will operate the firm under the same name. Mr. Griffey will devote his time to his electric appliance business.

The firm was founded in Booneville 10 years ago by Mr. Griffey and has an extensive service route in adjoining counties.

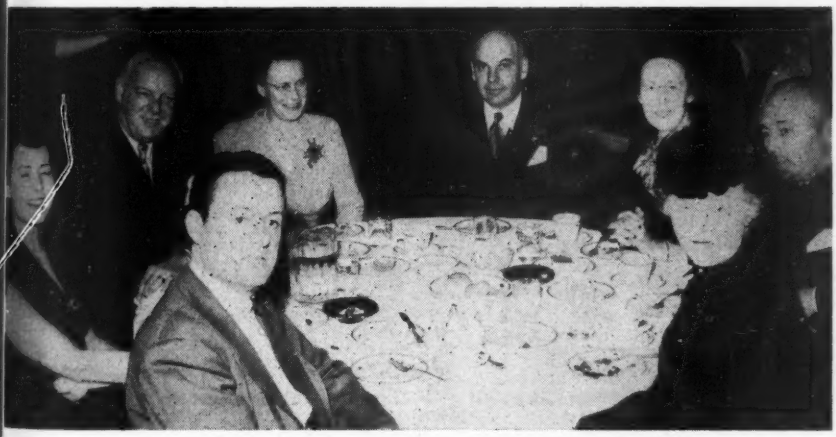
Harry Torbit Re-Elected President Of Colorado Association

THE first annual meeting and convention of the Colorado Liquefied Petroleum Gas Association was held at the Cosmopolitan hotel in Denver, Nov. 27, and brought together dealers from all over the state. One hundred seventy-eight members registered for the daytime session.

The meeting had a varied schedule of events, with merchandise displays by manufacturers of tanks, stoves, water heaters, regulators, etc.; an open forum discussion with participation by members, and talks by two well known industry members, E. Carl Sorby, of the Geo. D. Roper Corp., and Floyd F. Campbell, manager, Philgas Retail Division, Phillips Petroleum Co.

The meeting was an all-day affair comprised of business sessions throughout the day, and dinner and an informal evening of entertainment, attended by 200 members and guests. T. H. Anderson, of the Denver Skelgas Co., handled the program arrangements and F. N. Mabee, Colorado Natural Gas & Fuel Co., directed the merchandise displays of manufacturers.

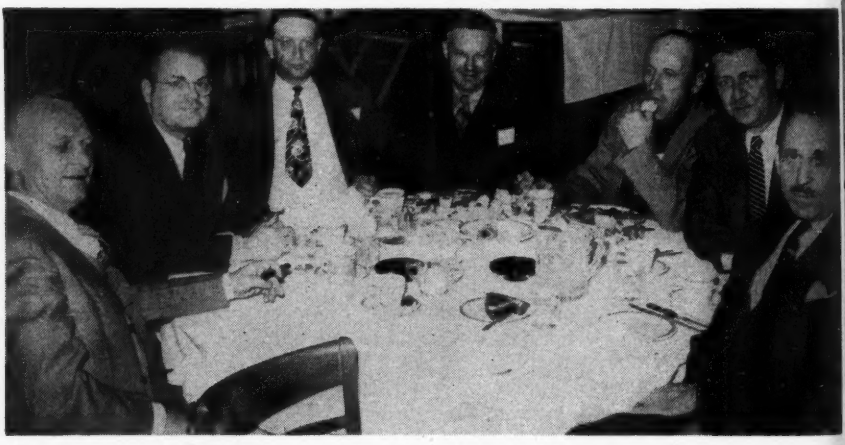
The events of the day having taken more time than was scheduled, the directors' meeting for the election of new officers was postponed until Dec. 10.



Clockwise around table, beginning with State Senator Arthur Brooks (front of table at left); Clara B. Rankin; E. Carl Sorby, Geo. D. Roper Corp.; Mrs. Harry Torbit; President Harry Torbit, Union Gas & Equipment Co., Pueblo; Mrs. T. H. Anderson; H. A. Martin, Socony-Vacuum Oil Co.; Mrs. H. A. Martin.

Conventionites Relax In Evening

Clockwise around table, beginning with W. C. Hagler, district representative, Phillips Petroleum Co. (front of table at left); L. Farley, Farley Gas Co., Denver; Mrs. L. Farley; Roy MacGinnis, Colorado State Inspector of Oils; Mrs. Roy MacGinnis; T. H. Anderson, secretary-treasurer, Colorado LPGA; Mrs. Carl Thom; Carl Thom, Skelgas Division, Skelly Oil Co.



Left to right: Pete Kanekeberg, Appliance Distributors, Inc., Denver; Gene McDonald, Servel, Inc., Evansville, Ind.; V. Miller, Roper Corp., Denver; Joe Coulter, San Luis Valley Gas Co., Monte Vista, Colo.; Lawrence Shriver, San Luis Valley Gas Co., Monte Vista, Colo.; Frank A. Ingle, Art Metal Manufacturing Co., St. Louis; Floyd Campbell, Phillips Petroleum Co., Bartlesville, Okla.

Clockwise around table, beginning with F. N. Mabee, Colorado Natural Gas & Fuel Co., Denver (front of table at left); Mrs. Criley; Mr. Criley, Colorado Natural Gas & Fuel Co., Denver; Mrs. E. F. McEahern; E. F. McEahern, W. A. Flatt Co., Denver (Bryant distributor); Mrs. H. C. Sayers; H. C. Sayers, Colorado Natural Gas & Fuel Co., Denver; Mrs. F. N. Mabee.

Evidencing their confidence in his leadership, Harry H. Torbit, Union Gas & Equipment Co., Pueblo, was re-elected to the presidency. Other officers chosen are: George Cummings, Cummings Gas & Equipment Co., Gunnison, 1st vice president; E. L. Scott, Butane-Propane Service, Holyoke, 2nd vice president; T. H. Anderson, Skelgas Co., Denver, secretary-treasurer.

Directors other than the officers elected are: Carl Bauer, Loveland; R. E. Hustead, Denver; John Kirkpatrick, Walsenburg; John M. Seal, Limon; H. J. Williams, Fort Morgan.

In his talk to association members, Mr. Sorby urged those in the convention to prepare today for their selling activities of tomorrow. He stressed the necessity for safety and correct installation of equipment and appliances. He reminded the convention that men and women in America are looking down the alleys to observe the type and kind of bottle and tank gas installations being made. He urged all the members of the association to start now to put their stores in order from a standpoint of display, recommending strongly actionized display and new freedom gas kitchen installations in order to take advantage of the national advertising program sponsored by AGA.

Mr. Sorby pointed out a potential market of over 500,000 gas ranges annually for the next four years for the industry, plus huge markets for gas water heating, gas refrigeration, gas space heating and some house heating. He spoke highly of the fine work that the Colorado Liquefied Petroleum Gas Association is doing.

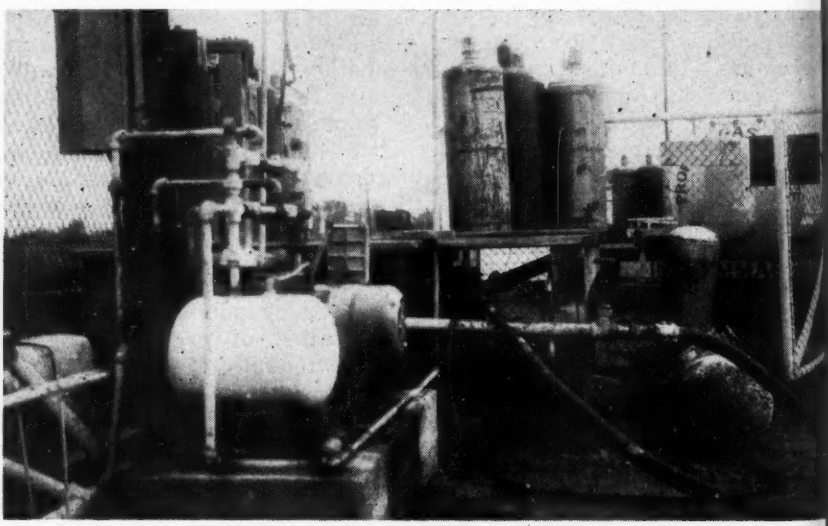
Larger Consumer Systems Better for User and Dealer

WITH two carloads of 430-gallon propane gas systems recently received and smaller shipments of B-P Gas heating equipment coming in, the G. M. McClellan Propane Gas Service Co., Salina, Kan., is set for a humming postwar business.

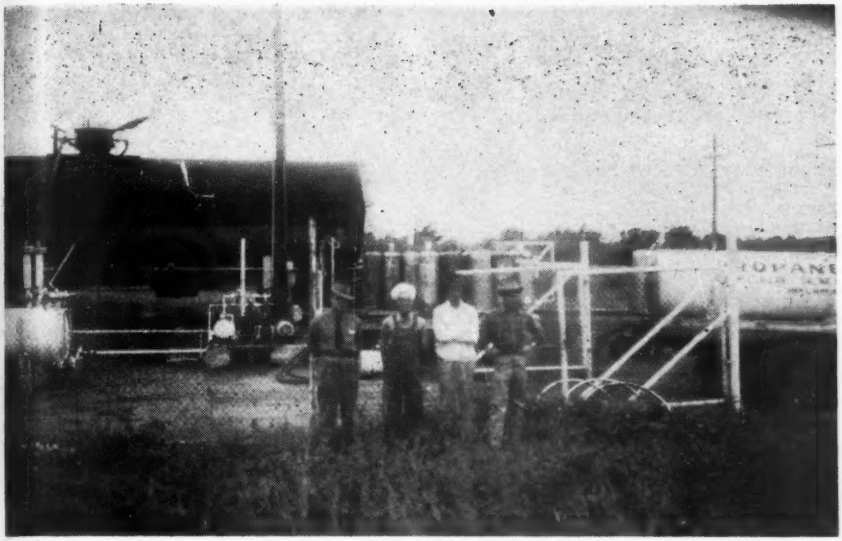
A large distributor of B-P Gas, systems and appliances, Mr. McClellan supplies 85 dealers within a radius of 100 miles of Salina. He distributes propane gas and installs home and industrial propane systems. He also owns and operates adequate bulk storage and bottling facilities. His office is at Thirteenth and Bypass on a broad paved highway which will be an ideal location for a retail dispensing and service station which he may install later on.

This distributor has established a growing demand through his dealers for larger domestic propane gas systems. For this purpose he distributes 430-gal. propane spheres manufactured by the Dallas Tank Co. The average farm family in the Salina trade territory uses 1100 gallons of propane per year. The larger tank installations require only four deliveries a year. This not only insures better service to the customer but saves time and money and wear on trucks and tires, because of the fewer delivery trips required.

The customer also has adequate storage capacity to meet all usual needs on the farm. He is in no danger of overloading his system nor of running out of gas in bad weather.



Bottling and loading plant of McClellan Propane Gas Service, Salina, Kan.



Here a tank car carrying 10,000 gallons of propane is being unloaded at the McClellan plant. In the foreground, left to right, are G. M. McClellan, owner; G. Fancher, Ed Joy and Dean Lonberger, employes of McClellan Propane Gas Service.

or at other critical periods. He becomes a more satisfied customer and is encouraged to use B-P Gas, not only for cooking and heating, but also for other useful purposes.

Even during the war period McClellan Propane Gas Service had a steady demand for propane gas. Deliveries in 1944 reached 400,000 gallons and are expected to top 500,000 gallons for 1945.

To supply this demand Mr. McClellan owns and maintains a 12,250-gallon (water capacity) storage tank, located on the right-of-way of the Santa Fe railroad at Salina. This tank is 32.3 feet long and 94 inches in diameter. It has a pressure rating of 200 pounds to the square inch, is set on two concrete piers and is located conveniently to a switch track so that it can be filled from tank cars shipped in from the refinery. The tank is equipped with a Roney rotary gage and 4-in. resilient-type safety valves, manufactured by the American Car & Foundry Co.

The company owns a bottling plant, located at the same site, from which the needs of dealers and direct users are supplied. This plant is equipped with a Dayton-Dowd pump with capacity of 50 gallons per minute; a Roney compressor used for unloading tank cars; one U. S. Standard platform scale, with 600 lbs., weighing capacity; 45 feet of 2-in., 25-ft. of ¾-in. and 25 ft. of ½-in. hose. A 5-HP electric motor and a 1/3 HP electric motor controlled by an electric explosion-proof starter, furnish power for the bottling and loading dock. The 12 by 30 ft., loading dock is not enclosed but its equipment is as nearly weather-proof as possible.

The company owns and operates

Propane delivery and service trucks ready to go out on the day's run. One delivery truck has already left. Propane tank car in process of unloading in the left background.

two delivery trucks and was expecting another one during November. These trucks are operated on propane gas and are equipped with "Algas" carburetors. One is a 960-gal. tank mounted on a 1½-ton chassis. The other one has 1112 water gallons capacity, was manufactured by McNamar Boiler & Tank Co., Tulsa, and is mounted on a 1½-ton Chevrolet chassis. Both are equipped with 2-in. "Rego" safety valves. The firm finds that the use of propane on these trucks guarantees more power, less crank case dilution, cheaper maintenance costs and less wear on vital parts of the engines. The company also owns and operates one service truck, used for bottle delivery and installation purposes.

For some time after the war the McClellan Propane Gas Service Company was operating with four men and a bookkeeper. Since October one employe has been added to handle installations.

"Pyrofax" Florida Men Hold Service Meeting

"Pyrofax" gas distributors from Jacksonville Beach, Lake City, Trenton, Ocala, Crescent City, Daytona Beach, Orlando, Tampa, Arcadia and Lakeland held an all-day service school Nov. 20 in the auditorium of the Hanson Gas Service of Leesburg, Fla.

In charge of the program was Mercer Farrar, head of the engineering department of the "Pyrofax" gas division of Carbide & Carbon Chemicals Corp., New York. Assisting him were Ralph Merritt and Joe Conlon, both field engineers of the same division.

The meeting covered all phases of installation of gas systems and the servicing of all gas appliances such as ranges, refrigerators, water heaters and space heaters.

Training Servicemen

General Principles of Gas Utilization

IN 2 PARTS—PART 2

By C. C. WESTMORELAND

THE chemistry of combustion is considered sufficient to form a background for discussing unsatisfactory flame characteristics and the various causes which result in incomplete combustion.

Lint in the air shutter, small "jacks" or other obstructions in the burner, flame impingement on cold surface and insufficent primary and secondary air are demonstrated to show how fundamental principles of combustion are being violated.

Smothering conditions that result from improper venting of flue products are discussed and field conditions (such as steel wool in oven vents) are related to the laboratory experiments which are used to present this phase of the training.

Venting

After the student thoroughly understands the principles of combustion the next logical step is to discuss the disposal of combustion products. This automatically ushers in the subject of venting.

Drawings showing how products of combustion travel through the appliance ducts are used to familiarize the student with the paths followed by combustion products to reach the vent.

Fig. 4 is an example of the drawings used to cover this point. The importance of a downdraft diverter is pointed out and emphasized as being an integral part of the appliance. The theory of gravity venting is related to the U-gage or manometer, which is al-

MANY NEW MEN are entering the liquefied petroleum gas industry. They will be dealing with a product, equipment and appliances which require specific knowledge. They, and men of experience, as well, can profit from information experts have accumulated. Average dealers are often handicapped by a lack of time and facilities in giving proper instruction to their servicemen and installers. Large organizations make this a regular department of their business. Good ways that some experts have learned to handle service problems are now being made available to readers of BUTANE-PROPANE *News* through a series of articles written by C. C. Westmoreland for natural gas utilities, large and small, and in their presentation here have been edited as to their applicability to the B-P Gas industry by Harold W. Wickstrom.—Editor.

C. C. WESTMORELAND

ready understood by the student.

The drawing shown in Fig. 5 is one of several that has proven helpful in teaching students what makes a vent operate.

At the conclusion of the venting lecture, the following simple test is conducted. Training props and appliances are used to demonstrate the major points treated in the discussion.

(1) Allow the appliances to reach operating temperature while making a cursory examination of the vent based on the classroom discussion; i.e. draft diverter, vent outlet, vent cap, height of vent, prevailing winds, etc.

(2) Place a match which has recently been extinguished near the edge of the draft diverter and observe the action of the smoke. If the smoke is not drawn into the vent, flue gas products may be spilling out of the diverter. If the smoke draws into the diverter, the vent is drawing satisfactorily.

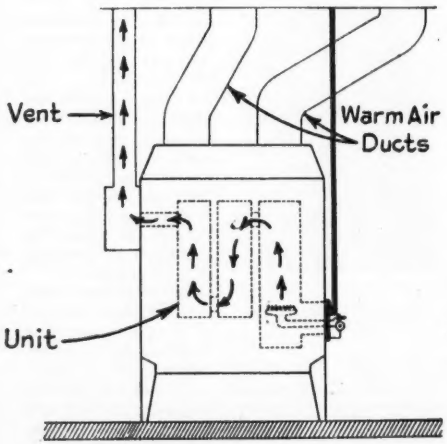


Fig. 4. How products of combustion travel through appliance ducts to reach vent.

Burner Design

Although appliance mechanics will not design burners as a part of their job duties, an understanding of correct burner design is helpful in analyzing service problems.

Points such as throat diameter, mixing tube dimensions and port area are discussed with the thought that when unsatisfactory conditions are observed in the field, a comparison of burner design features with those discussed in class may disclose the basic reason for unsatisfactory performance.

The following experience of an appliance serviceman illustrates how a knowledge of burner design and performance can be applied in the solution of field problems:

A poultryman had constructed a hot water chicken brooder using a conventional instantaneous water heater coil, case, and burner. An ordinary brooder thermostat installed in the gas line was intended to hold the temperature at the desired point. The first cold weather disclosed that a satisfactory temperature could not be maintained.

The serviceman who was called on the job made several recommendations, one of which, related to the burner. He knew that the instantaneous water heater burner used in that installation was not designed to operate at a low input. He also knew that the soot on the coils could be traced to the flame flashing back through the burner to the orifice, sooting the inside of the mixer head which in turn

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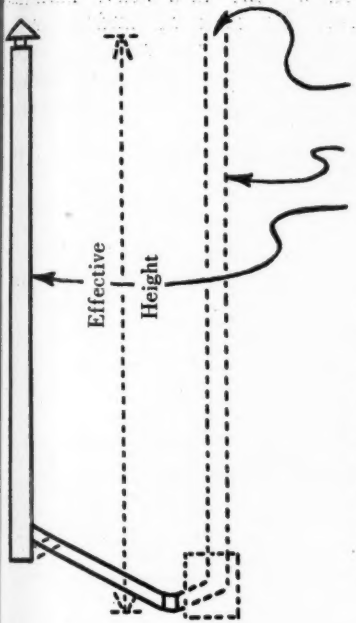


Imagine a U-tube filled with air instead of water.

One cu. ft. of air at 30° F. weighs in lbs. .08083.

One cu. ft. of air at 400° F. weighs .04620 lb.

	.08083
	—.04620
Difference	.03463

provides the pressure to force the products of combustion up the flue.

The greater the height, the greater the difference. This difference in pressure is due to the falling of the colder air and is influenced by the law of falling bodies: the greater the distance, the more rapid the velocity.

Fig. 5. Theory of gravity venting.

resulted in an unsatisfactory burner flame. Without a knowledge of burner design, the man might have overlooked one of the important points in solving the complaint.

It is cases like the one cited above that demonstrate the value of general knowledge relating to gas appliances. Odd pieces of equipment are encountered too infrequently for servicemen to accumulate experience in working on these specific appliances so that they must be prepared to analyze unusual problems through the application of basic principles.

Since the purpose of gas burning equipment is to transfer heat from one medium to another, the three methods of heat transfer should be discussed in this section of the course dealing with fundamental principles.

The three methods, conduction, convection, and radiation are discussed and related to specific appliances which will be encountered in customers' homes.

Fundamentals of Controls

The countless makes and models of controls used on gas appliances often present a discouraging obstacle to new employes who are preparing for the job of appliance mechanic.

Since most domestic controls operate on one of a few basic principles with minor variations applied by the individual manufacturer, the task of understanding and adjusting the numerous models encountered is not as difficult as it may appear to the untrained student.

It helps considerably if the fac

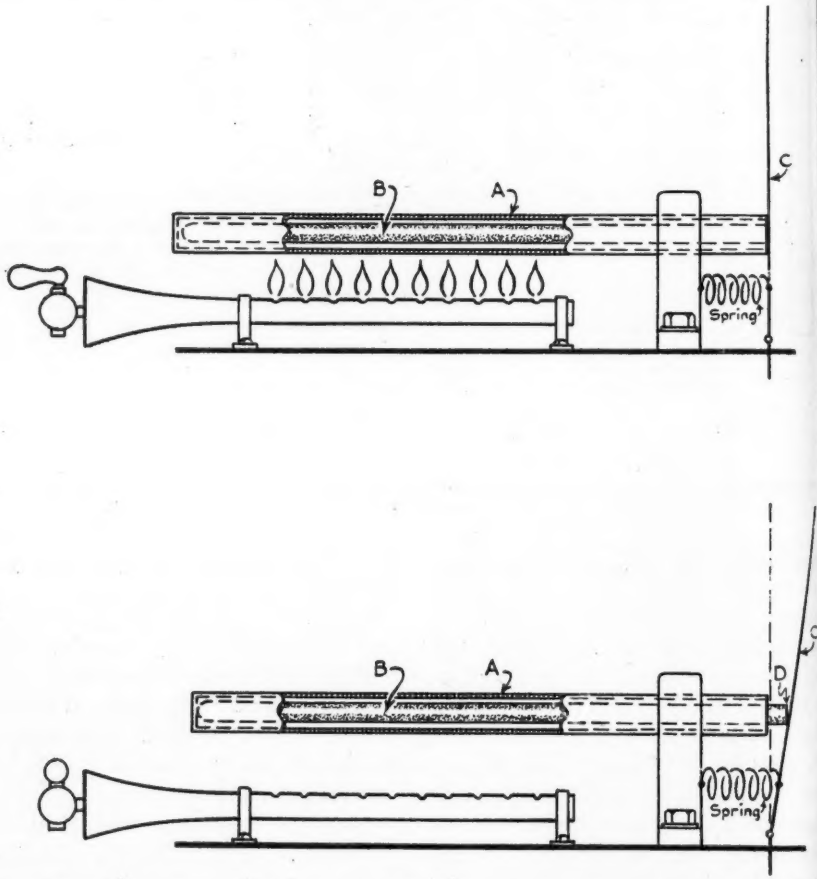


Fig. 6. Picturization of the elements which supply movement to operate a rod and tube control. Above: tube hot and extended; below: tube cool and contracted.

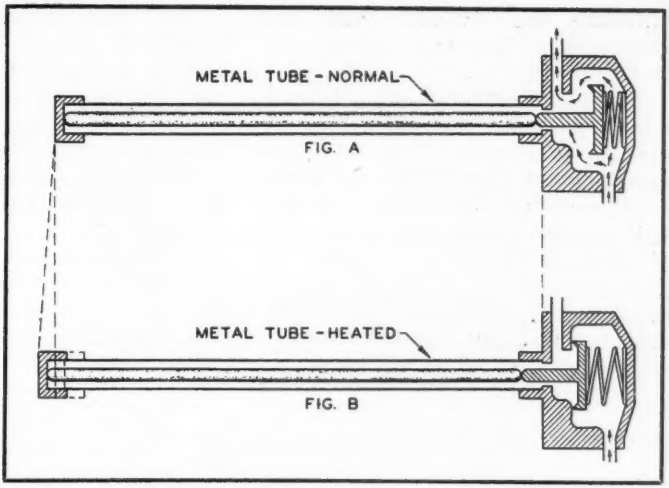


Fig. 7

that all controls operate on a few simple principles can be made clear early in training because the student can then more readily understand the operation of the various types of controls encountered on ranges, water heaters, refrigerators, or heating equipment.

As space will not permit a detailed description of how each type of control, i.e., rod and tube, bimetal, hydraulic, and thermomagnetic, is covered in the training course, only one example will be treated here. The rod and tube being the most common, has been selected in this case to demonstrate the steps employed to fa-

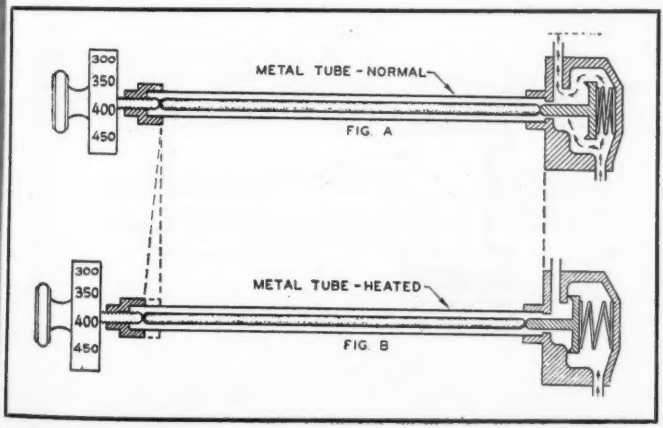


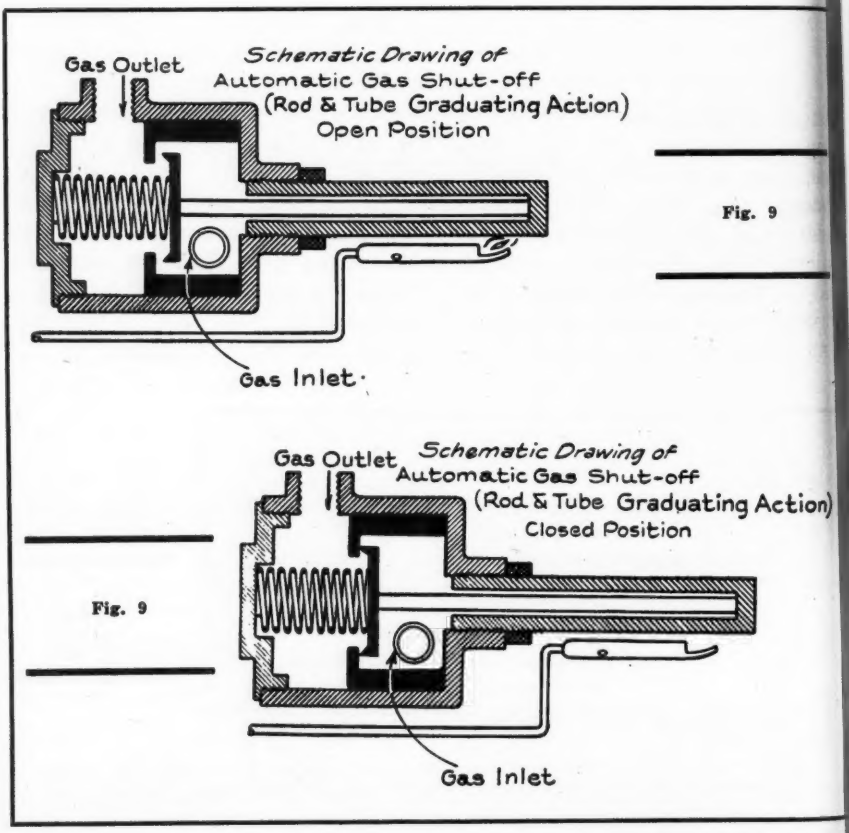
Fig. 8

miliarize the students with the knowledge of how this type of control operates.

Fig. 6 illustrates the element which supplies the movement to operate the control. The objective here being to show that different co-efficients of expansion of metals will supply a measurable amount of motion. The diagram alone is probably sufficient to establish that point but the mechanism itself is easy to construct and is helpful in an actual demonstration.

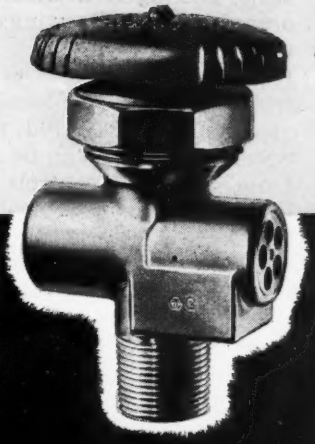
The same principle is demo strated in Fig. 7 except that t motion created by the expansi and contraction of the tube h been put to work by the additi of a valve on one end of the tub

Fig. 8 completes the elementar steps showing the development the rod and tube control by t application of a dial which mak it possible to regulate the tem erature at which the valve clos The application of this princip to automatic shut-off devices



Improved

PACKLESS VALVES



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easily understood by students once they understand the fundamental principles underlying the operation of control utilizing the rod and tube element.

Fig. 9 is one of several drawings in which the position of the valve has been reversed to illustrate how the rod and tube element is utilized in an automatic shut-off device. Individual manufacturers' variations of this basic principle such as quick-acting valves, snap action valves and other refinements can be applied to these basic drawings and understood readily by trainees.

Bi-metal controls, hydraulic controls, diaphragm valve controls, and thermo-magnetic type controls are given similar treatment using schematic drawings which appear to be the best medium for covering fundamental principles. This type of drawing does not confuse the student with details of construction but can be designed to focus attention on the principle alone which is the subject under discussion at this point. Later, detail drawings of specific controls and the controls themselves are helpful props in discussing service procedures.

Summary

This type of training is probably as important as any of the subjects to be discussed in this series of articles because it offers the foundation upon which the new employe can build his knowledge of individual appliances and controls.

It is fortunate, therefore, that this form of training can be successfully conducted on a modest scale, making it available to small organizations. Drawings can be used in many cases as a substitute for actual controls. The few controls necessary are easily obtainable and can be used repeatedly. Specialized props can be fabricated from discarded controls and need not represent an extensive investment.

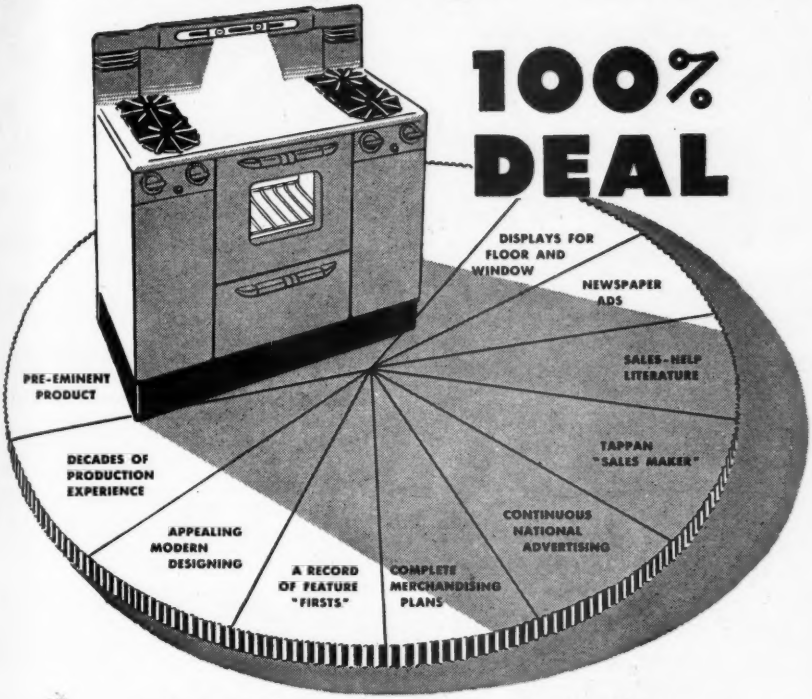
Even though classroom training involving ranges, water heaters, refrigerators, and heating equipment would not be practical for some companies, this basic training applied in conjunction with field training accelerates "on the job" learning because field observations are more meaningful when the fundamentals are understood.

NOTE: In using the chart on Page 36 (Part 1, December issue), it will be convenient in determining the Btu input at various meter rates for B-P Gas, or air mixtures thereof, to divide the actual Btu value of the gas being served by 1100 and multiplying the figure shown on the right hand column of the chart by this factor to find the Btu input of the gas being served.—Editor.

Mena, Ark., Butane Firm Changes Hands

The Butane Service Co., of Mena, Ark., has been purchased by Caver Brothers from Joe House and has been moved to new quarters at 511 DeQueen St., Mena.

It's Got Everything...TAPPAN'S



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- Pre-eminent Product
- Outstanding Beauty
- Exclusive Feature "Firsts"
- Quality Through and Through

YES, TAPPAN not only supplies you with one of the world's most popular and famous range lines—but Tappan backs it up with everything you need for profitable merchandising. Remember the time is not far off when ranges will be sold through greater selling effort rather than merchandising shortages.

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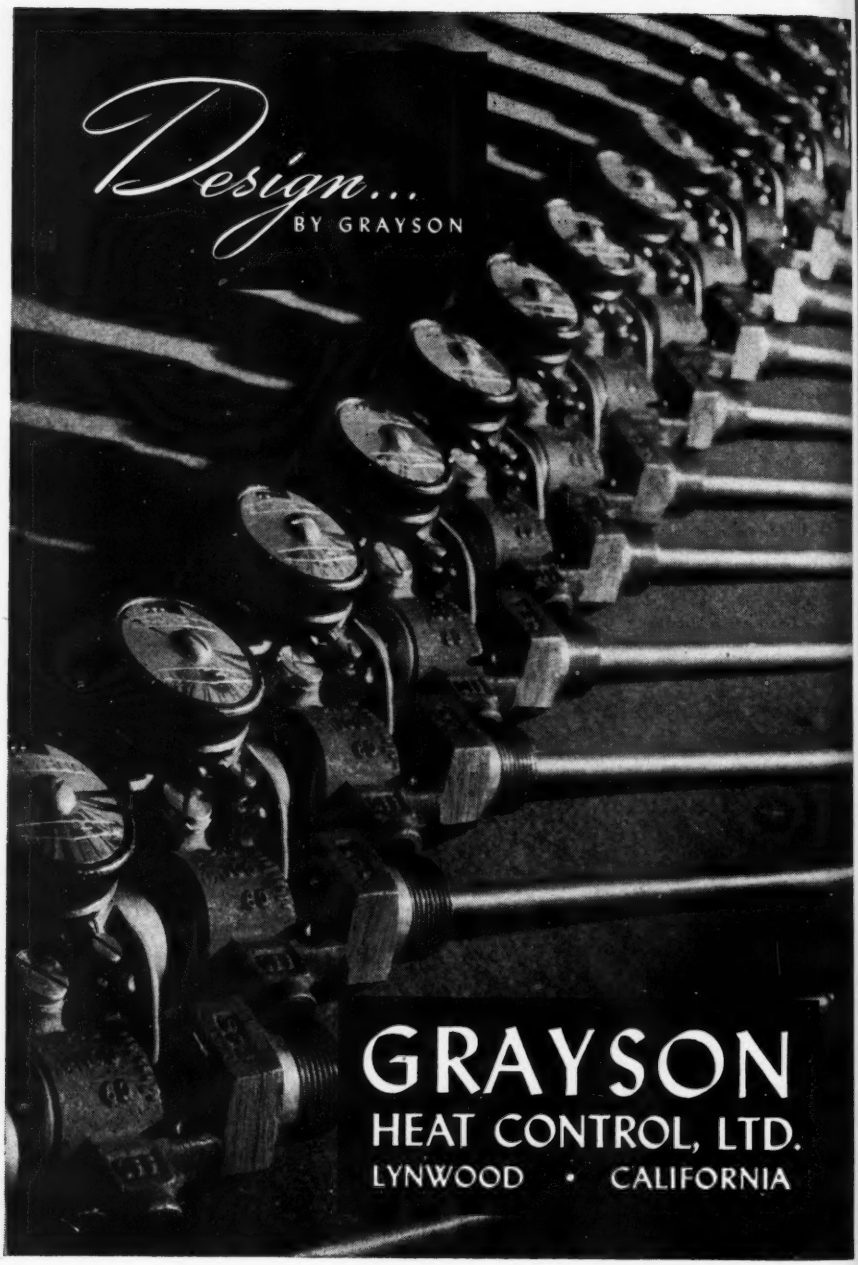
The TAPPAN *Stove Company*

Established 1881 (Sp) *Mansfield, Ohio*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BY GRAYSON
GRAYSON
HEAT CONTROL, LTD.
LYNWOOD • CALIFORNIA

Gas Lighting - - - *A Selling Tool*

WE will come back shortly to industrial applications of B-P Gases in the metal trades, but at this season of the year it is timely that we should make mention of one of our most neglected opportunities in which we might be of genuine service to our communities. I speak of gas lighting in its commercial and industrial applications.

Show this chapter to some of the storekeepers in your town. It may start them to thinking, save them some money, and make them grateful gas customers.

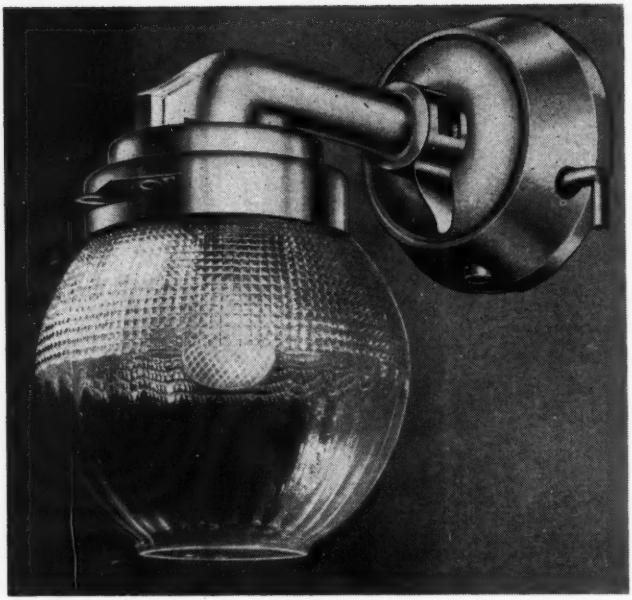
Electric service is *not* as constant as the waves of the ocean, although we must admit that it is quite dependable in the larger communities. We have become so accustomed to pressing a button and having light that we become quite frantic in our search for candles and antiqued oil lights when we press that button and nothing happens to dispel the darkness.

This may be nothing more than inconvenient in the home where we are acquainted with our surroundings and can move about in darkness without great danger of breaking our necks, but let the lights go out suddenly where people are congregated in a strange place, and panic is apt to be the result.

In Chapter 22 of "The Bottled Gas Manual" I made mention of an auxiliary gas lighting system which had been installed in a Maine store because of the electric lights having suddenly "gone out" one evening during the Christmas rush. If you read this chapter you will recall that $400 worth of merchandise was stolen and that damage suits totalling $100,000 were brought against the store. I have since been told that $25,000 was paid to settle the claims "out of court."

Now $25,400 is a sizeable piece of change to pay for a few minutes of darkness, and one might think that the store, relying upon continuity of electric service, had a legitimate claim against the power company for failure of its service, but eminent legal authority decided otherwise. The power company had but

By C. C. TURNER
Special Representative
Butane-Propane News



Gas lights such as this one are suitable for emergency use in halls or on stairways, but are not large enough for emergency store lighting.

one thing to sell, and suit could not be brought against it for failure to deliver the goods when that failure was caused by "an act of God," as was the reason in this case.

This gave the gas dealers of Maine quite a laugh, for it was something of a new thought that there could be anything of a higher power than the electric companies in a state in which they had done just about as they pleased and had framed legislation to suit their own tastes.

As for the poor storekeeper, his responsibility in point of law was something different. Even though power failure had been the cause of his difficulty, which, in turn, had been caused by "an act of God," he should have anticipated it. Means of auxiliary lighting for emergency purposes were available. By failing to provide for the safety of the public against the results of "an act of God" when such provisions were available, he made himself liable.

This case set many northern New England store keepers to thinking, and today there are scores of emergency lighting installations of various types to protect them against just such emergencies and the possible ensuing penalties.

In some stores an electric storage battery system provides current for just a few lights in places where they are most needed. The batteries are charged through a trickle charger off from the regular electric lighting circuit. Some of these systems have automatic switches of

The James Graham Co. wishes their many friends a bigger and better New Year in L P gas industry

WEDGEWOOD THE MODERN GAS RANGE

JAMES GRAHAM MANUFACTURING CO.

LOS ANGELES ★ SAN FRANCISCO ★ NEWARK, CALIFORNIA ★ PORTLAND, OREGON

the relay type which bring the auxiliary circuit into operation when the electric power fails. Others leave the auxiliary lighting circuit in operation at all times. Still others require the manual throwing of a switch with the possibility that no one may be at the proper place when the critical time comes.

At their best, such systems are expensive to operate, require replacement of batteries at intervals, and demand the inspection of a competent mechanic frequently. Their first cost is several times that of a gas lighting system. Store owners having such installations have told me that if they had the job to do over again they would not install an electric system of the storage battery type.

Some of the larger stores and commercial establishments have installed auxiliary electric lighting plants which are powered by small gasoline engines. Such plants present many problems. First, they must be installed in a place permitted by the fire governing bodies, this usually being in a separate building from the store. They require the attendance of a competent mechanic.

Reasons Against Other Systems

If such a system is hooked into the regular lighting system through a relay so that it becomes operative when power failure occurs there is always the possibility that the gasoline engine may not start. There is an appreciable period of time between the lights "going out" and the auxiliary lighting plant being able to pick up the load. The investment is many times that required to make a gas lighting installation. As a result, the sale of auxiliary electric lighting plants for emergency stand-by purposes has been small.

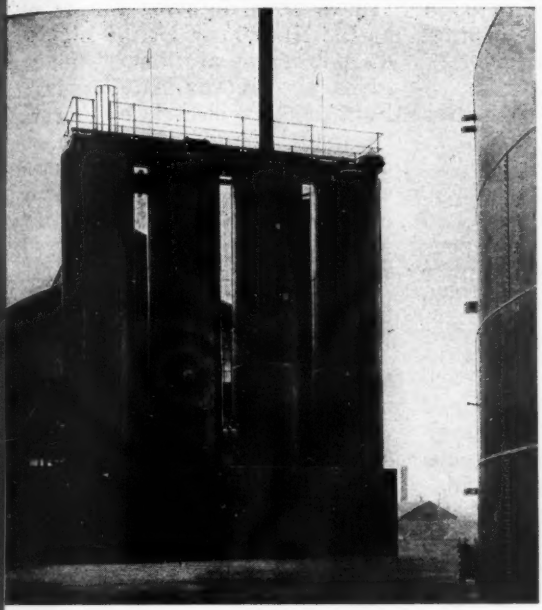
Emergency gas lighting systems, depending upon B-P Gases, have been sold by the score. It is not my intention to go into the mechanics of such installations, for these were covered in Chapter 22 of "The Bottled Gas Manual." Perhaps it might be well, however, to enlarge upon the economics of such installations from the buyer's viewpoint.

Gas Better Than Electric

First, in the matter of first cost, auxiliary gas lighting has the auxiliary electric lighting unit backed right off the map. Then let us compare the gas regulating and storage equipment with the auxiliary electric lighting plant, for both are sources of energy for light. If the entire cost of regulating equipment, cylinders, cylinder foundations and equipment housing are included in the bill which the user of an auxiliary gas lighting plant has to pay (and they should be for reasons which I shall later set forth), this part of the bill could not exceed $75.00. This would not even buy a good set of batteries for an auxiliary electric plant of the storage battery type, and would be but about 12½% of the cost of an auxiliary lighting plant which is operated by a gasoline engine.

Second, from the angle of maintenance, there is no such word in the vocabulary of the user of an auxiliary gas lighting system. The gas is installed, and he forgets about it. On the shoulders of the

DESIGNED FOR QUALITY



- Towers
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Absorption and Scrubber Towers 7½ ft. Diameter by 31½ ft. High.

Lancaster fabricated steel plate products are custom-designed by highly trained engineers with the emphasis always on quality, safety and economy.

Code-qualified, seasoned welders offer you fine, skilled workmanship in accordance with Para. U-69 of the A.S.M.E. Code or the A.P.I.—A.S.M.E. Code. Latest accepted shop practice plus design "know-how" assure you of a job that will meet with your approval in every respect.

Lancaster offers you LPG storage tanks in sizes up to 30,000 gal. water capacity fabricated from flange quality, high tensile steel, shipped to you complete and ready for installation. Also truck tanks completely installed on chassis at our shops as well as a comprehensive line of refinery towers, vessels, etc.

Your inquiries are cordially invited. Complete information and estimates will be submitted to you promptly without obligation. Please write, wire or phone today.

LANCASTER IRON WORKS, INC.

LANCASTER, PENNA.

gas dealer falls the duty of occasionally inspecting the system to see if the cylinders need replenishing. There isn't anything to deteriorate over a period of time. insofar as the user is concerned, and the first cost is the last cost of the system.

Regulators Are Dependable

Third, from the angle of dependability, there just isn't anything besides a pressure regulator which can go wrong in a gas system, and this is such a remote possibility that it may be dismissed. There are dealers who have been in the gas business for years and have never seen the inside of a regulator and could not explain to you the fundamentals of its functioning, the reason being that American regulator manufacturers build lasting dependability into their products. Compare the simplicity of a B-P Gas regulator to the complexities of chargers, relays, and switches with their multitude of parts and the case is a clear-cut one in favor of the auxiliary gas lighting system.

In view of these facts, is it any wonder that auxiliary gas lighting systems in stores and commercial establishments are out-selling electric auxiliary systems by as much as 20 to 1?

Yet, with this tremendous advantage of a natural customer preference there are dealers who say that they do not sell gas lights because there is no money or gas load in them. Here is where I throw the book at such operators!

First of all, there is a good percentage of profit in selling gas lighting fixtures to stores and commercial establishments (as well as to domestic users). Let us take a typical store lighting fixture such as the Humphrey No. 55 high candle power gas arc lamp. This lamp gives the approximate equivalent light of 5 1/3 electric bulbs having an input of 100 watts each. An average auxiliary gas lighting installation calls for approximately 6 of these lights at a net profit of not less than $10 apiece.

Since when has an appliance profit of $80 on a cost of $180 not been a worth-while one?

It may be that dealers who make this comment are in the habit of making all appliance installations free, having in mind making an eventual profit on the gas which these appliances consume. Whether or not this practice is a wise one in the case of gas ranges and gas refrigerators is debatable, but it certainly is the essence of folly in the case of low input appliances.

Electric Companies Don't Install

In proof of this, consider the very industry which is our bitterest competitor. Buy a new electric light fixture, call the electric company on the phone and tell them that you wish them to wire your house for it without any expense to you because you are going to use their energy through it. The energy consumed by that light fixture, and millions more like it, are the very life blood of the electric industry yet you would be told politely but firmly that the electric company does not do wiring for electric lights.

You would be referred to one of many thousands of electric contractors, the bulk of whose business lies

The "No. 55" Humphrey high candlepower gas lamp, designed for factories, warehouses, stockrooms, auditoriums and large stores; also, service stations, roadside stands, tourist camps and parking lots. Equipped with pilot for automatic lighting. Gives approximately 424 candlepower.

in wiring houses for electric lights and installing additional fixtures on already existing systems. Somehow they manage to make a living doing this. They make a profit on the materials they use and the labor that they perform.

Fundamentally, excepting as to the kind of energy used, an electric light is no different from a gas light, so why should gas dealers engage in the impractical practice of installing them without charge? Charging a fair price for labor and materials, there is a good profit in installing gas lights. If your experience has been to the contrary, it would be better to revise your selling policies or investigate what is going on in your service department.

As to there being no profit in the gas load from gas lights, dealers who make this statement are looking upon the installation of auxiliary gas lights in entirely the wrong light.

Let me take you up to Houlton, Maine, where Merle Rideout sells "Philgas" and has an auxiliary gas lighting installation in the local store of the J. C. Penny chain. Certainly there has been no profit in selling only 200 pounds of propane gas to the Penny people in a period of five years, but that wasn't the end of the Penny installation.

The operator of a large overnight camp saw the Penny gas lights. There was no electric service at his camp, and he had been worrying along with an electric light plant of

the storage battery type with a gasoline engine driven generator. This was thrown in the discard and gas lights were installed in each of 22 cabins, larger gas lights were installed in the canteen, and the yard was floodlighted with gas lights. Once having the gas installed, radiant gas heaters were installed in each one of the overnight cabins, while a circulating gas heater and a small gas commercial range were installed in the canteen, as well as an Electrolux refrigerator.

Now let's have a look at the potential and actual gas loads (Table 1) which resulted from an overnight camp operator having seen a gas light in the J. C. Penny store.

The *actual* gas load amounts to approximately 18,200 pounds of propane per year and shows a net profit to the dealer of approximately $231.14! The net profit on appliances sold was $610.23 and the net profit on labor and materials used in installing them was $54.79!

Forget the profit on appliances and on installing them; who can say that two cylinders of gas and a regulator, standing behind the J. C. Penny store at Houlton, Maine, are not making at least $231.14 per year for some gas dealer, even though they do nothing else but stand by for an emergency, and a single pound of gas never passes from them?

There are Penny store emergency gas light installations at Presque Isle and Madawaska, and I hear reports from these dealers of the business which has resulted from them. In other words, emergency gas lighting in stores or public places is one of the greatest pieces of advertising that any of you can do. Go after it!

•

Emergency gas lighting is not only opportunity in the commercial field. In those parts of the country where the overnight cabin flourishes, gas lights not only are a possibility for us, but are already returning to this industry an increasing revenue of more than passing interest.

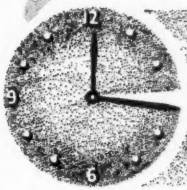
There will be more than one chapter devoted to this opportunity of ours at a later date, but to bring

Table 1. Potential Gas Load.

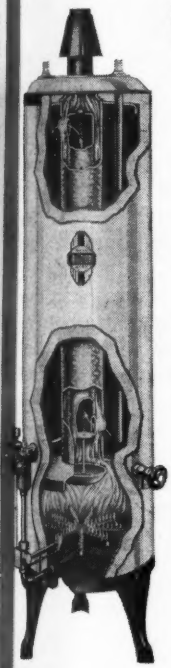
Number Installed	*Type of Appliance*	*Potential Gas Load per Appliance*	*Total Potential Gas Load per Hr.*
22	Small gas lights in cabins.....	2,700 Btu	59,400 Btu
4	Flood lights to illuminate grounds	13,000	52,000
6	Arc light type lights in canteen..	6,360	20,160
22	Radiant heaters in cabins.....	45,000	990,000
1	Circulating heater in canteen.....	110,000	110,000
1	Commercial kitchen range.....	173,000	173,000
1	Gas-fired refrigerator	3,620	3,620
	Total potential gas load, Btu per hour.....		1,408,180

Mission Water Heaters

Engineered to give



MORE HOT WATER
Per Minute
AT LESS COST...



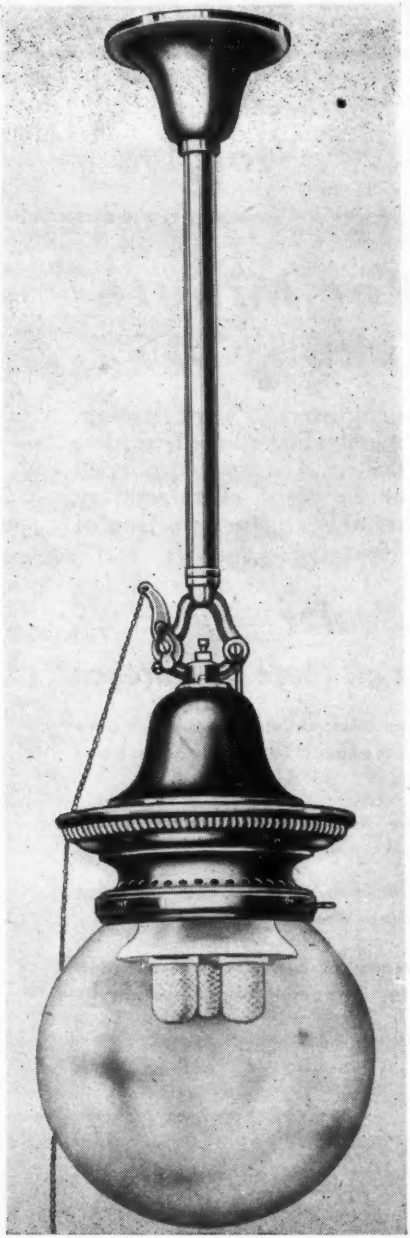
We put the finest engineers to work developing new ideas. We embodied all the best ideas suggested by our dealers. And we incorporated the results of our 20 years' manufacturing experience in this new *engineered* line of Mission Water Heaters.

Only Mission Senior
has all these advantages

- ★ **Exclusive Inner Tank circulation exposes over double the normal tank area to heat absorption.**
- ★ **Hot water on first circulation brings lower fuel costs.**
- ★ **Heavy tank construction and rust corrosion resisting features ensure longer life.**
- ★ **High effectiveness of burner and distribution of heat energy bring operation economy.**

Especially designed for Liquefied Petroleum Gases

Mission Water Heater Corporation
HEADQUARTERS PLANT: 7101 McKINLEY AVE., LOS ANGELES 1
San Francisco Branch: 3369 Mission — Oakland Branch: 6601 Bock St.



home forcibly to you the size of o opportunity, it is said that alread there are some 20,000 tourist aut mobile camps with some 440,0 cabins operating in the Unite States, and that from 8000 to 10,0 new camps, involving from 176,0 to 220,000 cabins, will probably b built in the next five years. Man of these are and will be located o of the beaten paths where ele tric current is not available.

Camp operators look askance a kerosene lamps or gasoline lantern in the hands of inexperienced cit folks. Are the manufacturers o electric light plants going to g this business, or are we going t supply the need with a servi which is simple, inexpensive, an practical?

In front of the type trays in on of New England's largest printi establishments, compositors wor by artificial light. The shop is note for its modern equipment, yet thes men work by gas light, and why Every type of light from mercur arc vapor lamps to the moder flourescent tubes have been tried but at the request of the men mant tle gas lights have been installe because they are easiest on thei eyes.

In an engraver's shop an engrav er sits and works day in and out b gas light because the gas light re duces the glare and shadows to a minimum and makes the productio of more perfect work possible.

In a loft, as I write this, hun

Humphrey "Radio—30" gas arc lamp. An appropriate fixture for store lighting. It is equipped with pilot, chain pull valve, and is equivalent to a 200-watt electric bulb or 289 candlepower.

Sit right down and write yourself a memo • • •

YES, SIR, *now* is the time to look into the TEMCO set-up—what's behind it—what's ahead of it . . . if you want to make money in the heating business.

The Tennessee Enamel Manufacturing Company is all set to go with a *new* product—The TEMCO Gas FLOOR FURNACE—developed before the war, then re-engineered and improved during the past three years when we couldn't make 'em.

The product is *ready* . . . for a waiting market . . . and so is a rip-snortin' sales campaign. This is a package of selling tools—using every form of advertising and sales promotion—ready to go to town for TEMCO dealers.

Quick Facts about the new TEMCO Gas FLOOR FURNACE

Re-engineered, to include new features developed in wartime experimentation.

One of the FIRST to gain A.G.A. APPROVAL under new and stricter specifications.

Burns all Fuel Gases—natural, manufactured and L-P (Liquid Petroleum) with equal efficiency.

Fully Automatic—Minneapolis-Honeywell thermostatic controls, optional.

100% Safe—fully guarded by safety devices built in and included in selling price.

Has the new "WHISPER-QUIET BURNER"—Your assurance of silent flame performance.

Easy to Install.

OBEY THAT IMPULSE!

If this is interesting to *you*—don't waste a day in getting complete information! Write us for the name of the nearest TEMCO distributor, and he'll give you the whole picture . . . of the huge home heating market . . . and of your opportunity to cut yourself a thick slice of profits.

TEMCO also manufactures a complete line of SPACE HEATERS, *designed especially for use with Liquefied Petroleum Gases.*

Tennessee Enamel Mfg. Co. • Nashville 9, Tenn.

TEMCO
FLOOR FURNACES
"The Biggest Little Thing in Home Heating"

WELBILT

Equi-Thermal
EVEN HEAT

GAS RANGES

offer

....all the 'extra' cooking features

....all the 'wanted' consumer appeal

....*plus* the high standards for EFFICIENT L.P.G. PERFORMANCE

A SIZE TO FIT EVERY KITCHEN OF TOMORROW

The World's Biggest Selling Popular Priced Ranges

There are many good reasons for this.

1. **5 cooking features women demand as a 'must' in postwar surveys.**
2. **Minimum servicing means that your customers can expect consistent daily service.**
3. **Nationally advertised.**

L. P. G. DIVISION

WELBILT STOVE CO. INC.

MASPETH, L. I., N. Y.

dreds of yards of cloth are passing beneath the alert eyes of an inspector, and gas lights are used because they are easier on his eyes and also show up defects more realistically.

These are but a few of the many special uses to which gas lights are being put up here in this country although electric lights are available. Not only does our opportunity lie in furnishing light at times of emergency; gas lights also have a field where the demands upon eyesight are exacting, and there is a demand for them in that vast area of America where the electric power companies' lines have not yet penetrated.

Survey Your Local Field

So, make a survey of your territory as to its gas lighting possibilities. If there are merchants in your town who are particular friends of yours, call their attention to the liability that they are assuming in case that they do not provide an auxiliary lighting system for times of emergency. Check up on the overnight camps. Go into the various industries and look for those places where the strain upon human eyesight is great.

You will be surprised at the potential gas lighting business that you will uncover; you will develop something which will be of great advertising value; and better yet, you will puncture the myth of electric infallibility.

Gas lighting does pay; it pays in the home, in camps, in business establishments and in auxiliary emergency service!

C. A. Ballard Will Direct Ruralgas Bulk Plants

C. A. Ballard recently became vice president of engineering of Ruralgas Co., Kansas City, Mo. He was formerly district manager for the Philgas wholesale division of Phillips Petroleum Co. and spent seven years at the Marens Hook, Pa., refinery of Sun Oil Co. in the research and development division and later constructed and operated the natural gasoline plant at Okemah, Okla., for the Balco Gasoline Corp. before joining Phillips.

C. A. BALLARD

Mr. Ballard will have full charge of Ruralgas' six new bulk stations as well as some 50 delivery trucks operating from these stations in Missouri and Kansas.

Earl J. Smith Retires from Underwriters' Laboratories

In accordance with the provisions of its retirement plan, Earl J. Smith concluded his employment with Underwriters' Laboratories, Inc., as engineer of gases and oils, Dec. 31.

Last May he completed 39 years of continuous service which began in June, 1906, when he came to the Laboratories as a graduate of a new course in fire protection engineering at Armour Institute of Technology.

Mr. Smith became an authority on the problems of safeguarding equipment and of methods involving basically hazardous materials.

Fast Drying, Early Marketing Changes Grain Farmer's Future

BUTANE and propane are aiding farmers in many areas in speeding up drying processes which permit earlier shipments to market and reduce the pre-harvest hazards of unfavorable weather.

The story of the operations of George Slaughter, owner of the Prairie Stock Farm, Wharton, Texas, gives further proof of the ever-expanding uses of liquefied petroleum gas in agricultural pursuits.

Prairie Stock Farm is located in the Gulf Coast section of Texas where the climate is very humid. This is primarily a cotton growing section with cotton a staple crop for the beginning of most agricultural operations.

Cotton Gives Way to Stock

In past years, however, cotton production has decreased owing to inroads made by insects in some parts, plant diseases in others, and an over-all shortage of low cost labor, lessening profits to the growers and land owners. This has caused farmers to turn toward livestock production, dairying, poultry raising, hogs and sheep. Raising stock, however, called for more feed than was produced in that section.

It was known that various feeds could be grown very successfully, and with good yields, but with heavy and frequent rainfall and a damp atmosphere these grain crops proved difficult to harvest and, mo particularly, to store successfull Rainfall frequently totals 50 inch Labor required for hand harvesti of the small grain crops proved a other drawback.

On Mr. Slaughter's 600-ac farm, crops are rotated for t most practical and profitable r sults. Winter legumes and cov crops consist of two hundred acr of hubam clover, 100 acres to ye low blossom (Melilotus Indica) a about 75 acres are given to grow ing oats. These crops are grow for winter grazing and are late harvested as seed crops.

Following these crops are grai sorghums such as combine maiz hegari, red top cane (grown fo seed) and various beans such a legumes and seed crops. From thes crops are fed about 200 head o hogs and some cattle for marke and breeding stock. Some acreag of the farm is devoted to mun beans, from which chop-suey an chow-mein are made.

Moisture Content Reduced

All of Mr. Slaughter's crops ar harvested with combines. As the come from the field their usua moisture content is above 20% Before they can be safely stored i is necessary to bring this moistur content down to around 13%, o less. This is done artificiall through a dehydrating metho Transportation difficulties made th

RELIANCE REGULATORS

ARE DESIGNED AND TESTED TO MAKE L-P GAS BEHAVE

A Reliance Regulator will make gas behave in every conceivable regulating application in the liquid petroleum industry. The wide range of sizes with many variations of Reliance Regulators provide positive and uniform control for all pressure conditions in L-P gas lines.

Since the birth of the L-P gas industry, Reliance Regulators have been preferred for their originality of design, by which positive lock-up and absolute control of steady outlet pressure are assured under variable loads and inlet pressures.

Simplicity reduces installation costs, minimizes maintenance service, reduces size and weight and saves metal for the war effort. To make your L-P gas system behave, install Reliance Regulators.

BULLETINS ARE AVAILABLE ON THE COMPLETE LINE OF APPROVED RELIANCE REGULATORS.

AMERICAN METERS

RELIANCE REGULATORS

RELIANCE REGULATOR CORPORATION
1088 MERIDIAN AVENUE, ALHAMBRA, CALIFORNIA

process of getting these grains to a market or dryer very difficult, and natural gas is not available. The answer has been found to lie in butane or propane gas.

Butane Best For Drying

In using butane in his drying operations M. Slaughter states, "We use butane gas as a fuel and have found it much more satisfactoy than any other we have used. It can be controlled and regulated definitely and accurately. A controlled temperature is needed in drying the different seeds which are to be stored and later sold to growers.

"We have found that with butane gas heat we can keep a temperature of about 110° F., which will not injure the germination. When we are drying grain for feeding we can use a much higher temperature—up to 200° F.—and the grain will dry very rapidly and satisfactorily.

"Our method is to sack the grain in about 100-lb. sacks at the combine. We have a large floor in which there are openings cut to allow a 100-lb. sack of grain to cover.

"Butane burners are lighted and a large fan driven by a 5-hp. motor draws the heat from the burners, drives it underneath this floor and up through the sacks of grain. The capacity is limited or expanded to the amount of openings and volume of air.

"The floor has a capacity of 6 tons of grain at each filling and will handle from 18 to 30 tons in 24 hours, according to the amount of moisture it contains. The sacks of grain are turned once during t drying process."

The costs of this drying meth Mr. Slaughter states, depend up the amount of moisture content the beginning of the operation. has found that in actual tests wi threshed maize the moisture co tent could be taken down from 24 to 13% in seven hours at a cost 91c per ton, exclusive of labor cos

Mr. Slaughter states that he h neighboring dairymen who use process similar to his for dryi alfalfa hay and various fora crops and in that area of Tex there is considerable growing rice, hay and forage crops, whi are also dried artificially with liqu fied petroleum gas.

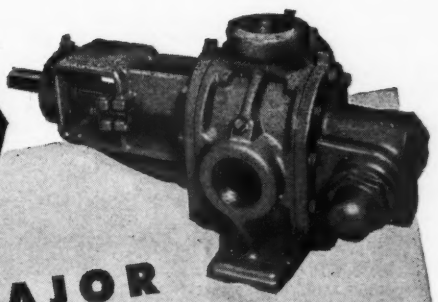
Mr. Slaughter is very enthusia tic about this method of drying f before he adopted it he had in a tual operation lost hundreds thousands of dollars worth of gra and had high production costs p up besides not really having a go product. This was due, he states, a lack of the very facilities whi he now states he has obtained wi the use of butane gas.

Georgia Butane Dealers Meet During Cold Snap

In spite of cold weather, and t consequent unprecedented dema upon distributors for fuel, the Geor ia Butane Dealers Association met Dec. 17 at the Ansley hotel, Atlan Hermann Paris presided.

The featured speaker was Bu Mulloy, of the Lawrence H. Selz O ganization, Chicago, who told the a tendants of the success of the LP publicity campaign during 1945.

See this New ROPER Pump



WITH 7 MAJOR IMPROVEMENTS for pumping L-P GASES

1 New removable cartridge type anti-friction shaft and thrust bearing. Non-corrosive, totally sealed . . . no dirt can enter, no grease escape. Long life, extra load capacity.

2 Extra deep packing box contains 10 special L-P split-ring packings. Permit lower radial pressure on shaft . . . insures long leak-proof service.

3 To reduce wear, equal size semi-steel pumping gears are keyed to shaft . . . free to float, they operate in axial hydraulic balance . . . in case of damage are quick and easy to replace.

4 New lubricating and cooling principle causes small volumes of liquid to by-pass hydraulically through grooves in each of 4 high-lead bronze bearings.

5 New full diameter stainless steel drive shaft . . . heat treated and hardened . . . is non-corrosive.

6 Newly designed cap and split-type packing gland . . . quick and easy to remove . . . allows additional clearance for repacking.

7 New built-in relief valve gives added protection. With low build-up springs and large ports, operates at pressure differentials of 10% or less. Overall design makes for quieter operation.

FOR TANK TRUCK SERVICE

Easily installed on side frame or in cradle. Direct-drive through power take-off or chain and sprocket driven. Interchangeable with previous models.

FOR BULK STATION SERVICE

Single or multiple units with gear reduction drive furnished in various sizes mounted on individual bed plates, with or without motor.

FREE FOLDER

Send For Complete Information

GEO. D. ROPER CORP.
101 Blackhawk Park Ave.
ROCKFORD, ILLINOIS

ROPER Rotary Pumps

A NAME THAT STANDS FOR QUALITY

McNAMAR L-P GAS TRUCK TANKS

"WITH PROVEN PERFORMANCE"

PROPANE BUTANE

GREATER PAYLOAD HIGH TENSILE STEEL

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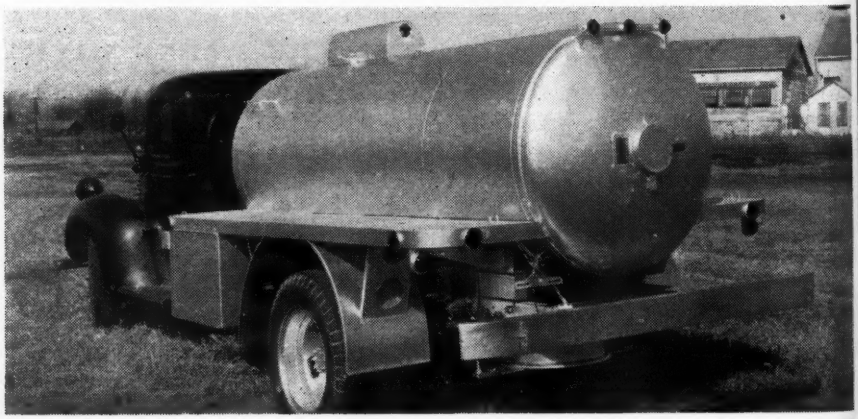


QUIZ — Water Heater Burner Adjustments

• *This department is a monthly feature to stimulate thought and to give operators basic industry facts. Clip out for your notebook or file in a standard, 3-ring, loose-leaf binder. Sources of information: The Bottled Gas Manual, Handbook Butane-Propane Gases.*

Questions	Answers
1 **Before lighting the burner on a water heater, what precaution should be taken?**	Check to see that heater contains water. This can be done by opening hot water faucet, which should flow freely.
2 **Before turning on gas to automatic water heater, what check should be made?**	See that heater is equipped with 100% safety burner and pilot shutoff.
3 **What other check should be made?**	See that heater has vent pipe and downdraft diverter attached. See that there is ample ventilation for air to enter closet or room in which heater is installed.
4 **What type of installation is not recommended?**	Installations in basements or pits, unless provision is made for floor-level ventilation.
5 **When first lighting heater, what precaution should be taken?**	Due to air in the lines, the burner is liable to be slow in lighting. Keep your face and hands away from the burner opening. Use a taper or a piece of burning paper wadded into a torch for lighting.

6

After main burner is lighted and operating, how can the pilot be checked?

Turn water thermostat back to cold position. Burner should cut out and pilot stay lighted. Adjust pilot until it has a steady non-smoking flame but large enough not to blow out when main burner shuts off.

7

What causes condensation when burner is first started?

When a water heater is first started the tank and flue are cold and condensation will form and drip back. After tank has become hot condensation should stop. If it persists, the cause is usually due to a vent pipe that is too cold.

8

If on a service call you find the water heater is sooty and dirty, what is usually the cause?

If the flame is clean and still soot is noticed, it is usually due to lack of air to the burner. This can be cured by providing larger air vent to the heater by cutting off the bottom of a closet door or installing an air vent into the heater closet.

9

To what is due the usual trouble call for high gas consumption and insufficient hot water?

This complaint is usually due to "liming up" of the heater. This is caused by bad water conditions and by overloaded water heaters. A size larger water heater is an economy in the long run.

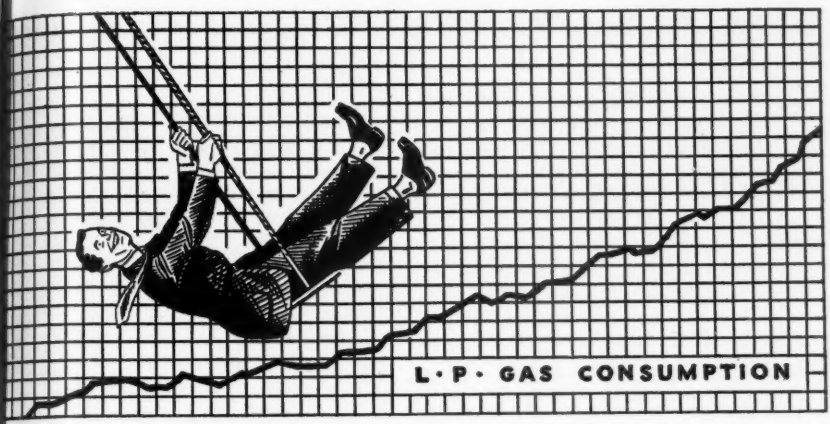
10

What is the most common service call on water heaters and how can it be corrected?

Pilot light failure. Very often this is due to improper location of the thermocouple. The thermocouple should be located so the pilot flame heat applies on the end of this couple but preferably without the flame itself or main burner flame impinging on it.

SUBJECTS TO BE COVERED IN FORTHCOMING ISSUES:

- **Thermostats, Pilots and Pilot Controls**
- **Burner Design and Application**
- **Appliance Conversions**



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Model P.D. Gas-operated
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137 Pacific Street, Newark 5, N. J.

SOLD BY LEADING DEALERS EVERYWHERE

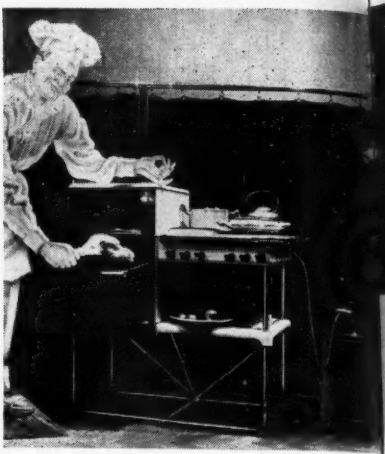
Palestine and Egypt Utilize B-P Gas On Large Scale

Something of the vast market for B-P Gases abroad after the war is indicated by the current operations of the Bottled Gas Co., of Cairo, Egypt.

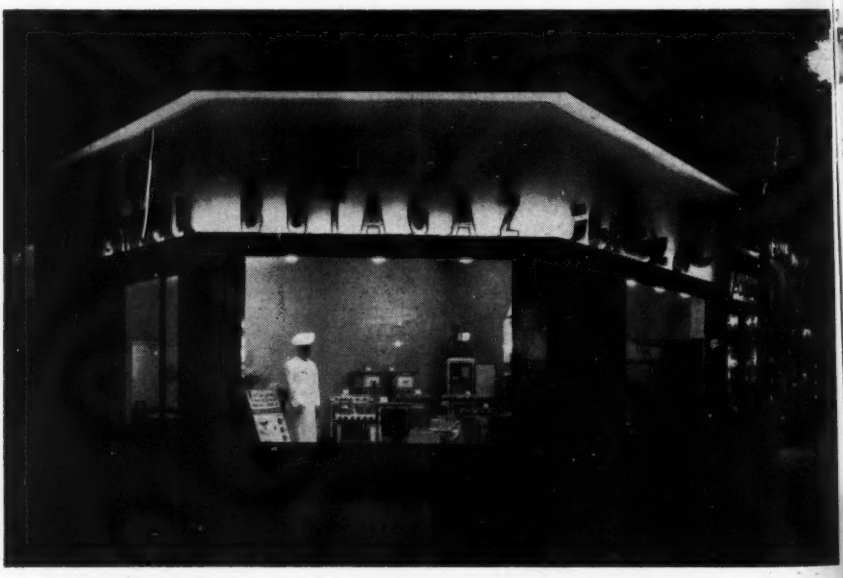
According to J. Weissmann, principal owner of this firm, distribution of gas, equipment and appliances is entirely through 25-lb. and 100-lb. cylinders, largely to the main towns and villages. The fuel is sold under the name of "Shell Butagaz." Cylinders are filled at the Shell Oil Co.'s Suez refinery.

The Bottled Gas Co. works closely with dealers and distributors throughout Egypt and Palestine.

Mr. Weissmann states that together with distributors in Palestine, who sell the same fuel, a market for B-P Gas has been developed with tens of thousands of customers and that this market will expand and flourish w... wartime import restrictions are eas...



Cairo, Egypt, distributor uses display figure in cooking demonstration scene.



Appliance show window of The Bottled Gas Co., Cairo, Egypt, compares favorably with those of B-P Gas dealers in the United States.

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LIQUEFIED PETROLEUM GAS

NEW PEACETIME USES FOR WARREN'S WAR-PROVEN BUTANE-PROPANE

New peacetime appliances, devices and processes for domestic, industrial and agricultural uses are creating many new markets for Warren's war-proven Liquefied Petroleum Gases. Among the growing rural and farm uses for Butane and Propane, are the following:

Poultry Brooders	Smoke House	Rice Drying
Incubators	Irrigation Pumping	Cooking
Tractors	Flame Cultivation	Water Heating
Dairy and Milk Plants	Saw Mill Power	Refrigerating
Dehydration	Cotton Gin Power	House Heating
Fruit Ripening	Cotton Drying	Lighting

Have you surveyed these sales possibilities in your territory? Is your source of supply adequate to meet your demands? Warren has the manufacturing, storage and shipping facilities to meet the requirements of old and new customers. We invite your inquiries.

WARREN PETROLEUM CORPORATION
TULSA, OKLAHOMA
Detroit, Michigan Houston, Texas

Early-Day Selling Meant Overcoming Customer Ignorance

By A. E. ELKINS

Manager Elkins Butane Co., Wheaton,

SINCE starting in the butane business on March 1, 1939, we have enjoyed a steady, normal growth, of which we are very proud. When we purchased the Noel Butane Gas Co., they had only a 1400-gallon storage tank and a 500-gallon butane gas delivery truck which was used as a combination for installation work and gas deliveries. We used a hand pump for delivering gas. If one really worked hard, he could pump 100 gallons of butane in an hour.

I sometimes wonder why we did not become discouraged and quit the gas business, having to work with so crude and slow a process in everything we did. We began our work with the former company's customers, who had 21 underground tanks ranging in size from 108 to 240 gallons, and scattered over five counties in the southwest part of Missouri.

At that time, there was only out of every hundred who knew w we were talking about when we t to sell them butane gas. We put most of our time demonstrating w a five gallon propane tank and three burner porcelain "Magic Ch hot plate which we left from three six days with each prospective c tomer.

We installed complete outfits w the agreement that we were to p up the complete outfit and refu money if customer was not entir satisfied in every respect. Slowly

The main office building of the Elkins Butane Co. at Wheaton, Mo.

Here is a plumbers' outfit that is a money maker for those who use it. It lights with a match, requires no pumping of pressure, wastes no time generating. It's plenty hot, too! Will reduce a pot of lead to the molten state in five minutes. Stays lighted regardless of draft conditions and emits no smoke, soot, or offensive odors. It is an outfit that you can recommend to any progressive plumber who wants to please his customers, as well as cut his own labor costs. Write us for prices.

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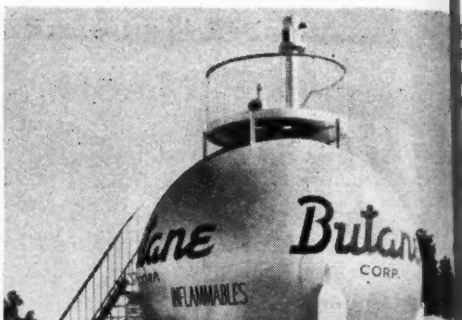
Ransome

Hortonspheres For the Storage of Butane and Propane

Hortonspheres for the storage of butane, propane and other volatile liquids are built in the standard capacities shown in the table at right, or in special sizes to meet your requirements. They are designed in accordance with API-ASME specifications or the ASME Code for Unfired Pressure Vessels where state regulations will not permit the installation of API-ASME designs.

Write our nearest office for quotations stating the number of Hortonsphers required, capacity or diameter, pressure, product to be stored and location.

The Hortonsphere shown above is 16 ft. in diam. and is designed for 250 lbs. per sq. in. pressure. It is used by the Butane Corporation at Phoenix, Arizona, for storing propane.



STANDARD CAPACITY HORTONSPHERES

Capacity in Barrels	Diameter in Feet	Pressure in lbs. per Sq. In.	Number of Posts	Surface Area in Sq. Ft.
300	15	50-300	3	707
525	18	50-250	4	1,018
1,000	22¼	40-200	4	1,555
1,475	25¼	30-150	4	2,003
2,000	28	30-150	5	2,463
2,500	30¼	30-150	5	2,875
5,000	38	30-100	8	4,536
6,000	40½	30-100	8	5,150
7,500	43¼	30-100	10	5,900
10,000	48	30-75	10	7,240
12,000	51	30-75	10	8,175
15,000	54¾	20-60	12	9,420
20,000	60½	10-50	12	11,500
25,000	65	10-40	12	13,273

* Water capacity in barrels of 42 gallons, plus approximately 2 per cent vapor space.

CHICAGO BRIDGE & IRON COMPANY

Birmingham, 1.....1519 N. Fiftieth St.
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San Francisco, 11..1289 Battery St. Bldg.
Cleveland, 15.....2271 Guildhall Bldg.
Tulsa, 3.....1657 Hunt Bldg.
Atlanta, 3.....2101 Healey Bldg.

Los Angeles, 14.....1468 Wm. Fox Bldg.
New York 6.....3451-165 Broadway Bldg.
Philadelphia, 3..1655-1700 Walnut St. Bldg.
Washington, 4.....703 Atlantic Bldg.
Houston, 1.....5647 Clinton Drive
Detroit 26.....1559 Lafayette Bldg.

Plants at BIRMINGHAM, CHICAGO, and GREENVILLE, PENNSYLVANIA

people learned the advantages of gas and that it gave them conveniences no one except people who lived in cities had ever enjoyed before.

We have enlarged our storage capacity from 1400 gallons to 63,881 gallons at present, with another 20,000-gallon propane tank to be added next year. We use vapor system compressors at both Neosho and Wheaton bulk plants for unloading tank cars, filling bottles, and loading our delivery trucks.

Our opinion on building any kind of business is this:

First, you must have a good product to sell, manufactured by a reputable firm.

Don't kept a salesman who misrepresents your product to customers.

Have a service crew that knows how to, and will, do the job right and safe.

Get a fair profit on what you sell.

Be honest with your customer and yourself.

The law of average will make your business a success.

A. E. Elkins, Missouri dealer, didn't spend his 1945 vacation in Minnesota in vain.

The Neosho, Mo., bulk plant and store of Elkins Butane Co.

New Products

Deep Fat Fryer

J. C. Pitman & Sons Sales Corp., 711-719 Broad St., Lynn, Mass.

Model: 24x24 (Doughnut Fryer)

Description: Constructed of heavy steel, finished in baked, greenish-gray, synthetic enamel, cabinet style.

The cooking vessel is of one-piece construction with a tapered bottom fitted with a 1¼ in. drain valve and

constructed without seams which might collect, or allow the passage of, grease. Thickness of cooking vessel is No. 14 U.S.S. steel plate gage. It contains a low temperature crumb receptacle into which all crumbs fall by gravity. Has six 2½ in. No. 12 gage seamless steel tubes equipped with heat-retarding baffles installed through the center of fat container above an adequate cool zone which prevents burning or charring of food particles.

Cooking vessel constructed so fat under heating tubes does not circula with fat above heating tubes.

Equipment furnished includes: cr ler submerger; 2 heavy, retinn trays; No. 18 wire, 4 mesh-weld construction; 1 drainboard, 26¼ in. 25¼ in. with adjustable brackets, i terchangeable for either right or le 1 flue pipe; 1 back splash; 1 flat wi screen drainer to fit over tubes. Tr capacity, 4 doz.; hourly capacity, doz.; 27½ in. wide, with drainboar 52 in.; depth, 42 in.; height, 34 i pot, 24 in. x 24 in.; fat capacity, 1 lbs.; shipping weight, 360 lbs. Ma Btu. per hr., 64,200.

Engine Lubricant

Carbide and Carbon Chemica Corp., 30 East 42nd St., New York N. Y.

Model: A new internal combusti engine lubricant.

Application: These compounds a manufactured in two types, wat soluble and water insoluble. The latt type is used for lubricating interna combustion engines. Other applic tions include lubrication of refrige ating machines and all kinds of ma chinery operated under conditions low temperature or where a no sludging oil is required, and as hy draulic fluids, textile lubricants, pla ticizers, in leather treating co pounds, wire drawing lubricants a heat transfer liquids. Greases havi unusually high and low temperatu properties have been prepared fro these lubricants.

Description: The manufacture states that this lubricant has unusu advantages over mineral oil, partic larly for cold weather use and h properties quite different in many r spects from oils derived from p troleum.

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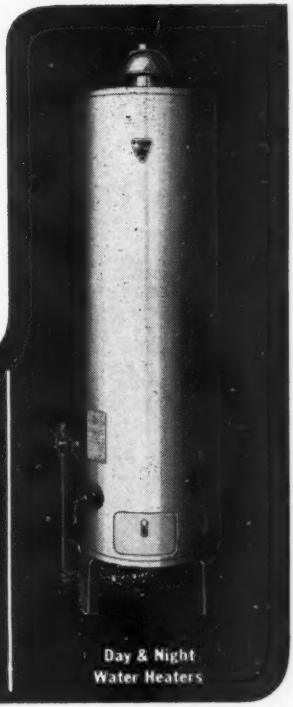
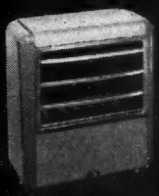


Panelray Vented Gas Wall Heaters



Cabinet Heaters

Lectro-Glo Gas Wall Heaters

Day & Night Water Heaters

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To qualified dealers in the fast-growing Butane-Propane field, Day & Night Manufacturing Company offers the opportunity to represent America's finest line of LPG home and water heating appliances in the postwar years ahead. To all such dealers will come a full share in Day & Night's postwar sales expansion program already in full swing. Write for literature and information about the Day & Night complete line.

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One of the Dresser Industries

Change-Over Methods and Practices

In Adjusting Appliances for the Utilization of Higher Btu Gas

By ROBERT L. RUNDORFF

Northern States Power Co., Saint Paul

THE change-over of equipment to properly utilize other than manufactured gas is necessary primarily to maintain rated Btu input through the exchange or adjustment of the gas orifices and secondarily to provide additional burner port area, carry-over ports or entirely new and different burners in order to utilize a gas that has different burning characteristics than the manufactured gas which had been previously utilized in the appliances.

A further consideration of a change-over should be to provide passable service to the customer at all times during the progress of the work, with as little inconvenience to him as possible.

Methods of Change-Over

There are two general methods of change-over which probably have as many variations as there have been men in charge of those change-overs. These two general methods are:

A—One step: With this method, the change-over and adjustment of appliances is made with the final gas served to the customer and only one voluntary call made on each customer, except for special work. This method should only be used where it is possible to have small districts and a crew of such size that the longest time any one customer is without an adjustment is no more than three or four days.

B—Two step: The two step method requires two calls and utilizes an intermediate service where either a gas of increased Btu is served or pressures in the distribution system are increased during the period.

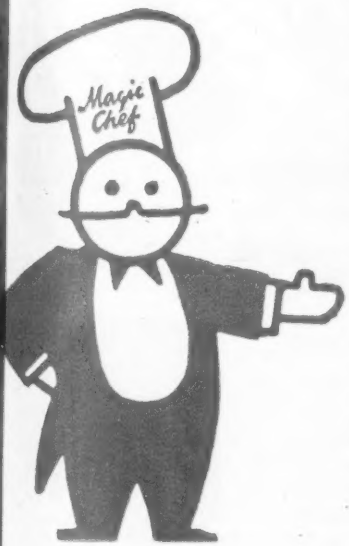
The customer's appliances are changed over and so adjusted during the intermediate service that flames will require but very little further adjustment on the second call after the intermediate service is replaced with the final gas. The

The mechanics of changing over a gas distribution system and the appliances it serves to a gas of different heat content is a subject of widespread interest. In this article Mr. Rundorff gives a general description of the policies and methods which his company has adopted in change-over work, including a brief description of the two general methods used, materials and special equipment needed, methods of changing burner port areas, customer surveys, preliminary testing, crew organization and training, and general publicity. Mr. Rundorff's paper was presented before the Mid-West Gas Conference and School, Iowa State College, Ames, Iowa, in October, 1945.—Editor.

Magic Chef DESIGN CONTEST

...is solidifying position of

LP Gas Cooking in the modern home



● The gas industry is urged to tie in with the Magic Chef $18,000 competition for the best designed gas range of tomorrow. A "package" of suggested news releases has been prepared to suit the needs of the local dealer. These stories are yours by writing the advertising department of American Stove, 4301 Perkins Ave., Cleveland 3, O.

To the utility companies and Magic Chef dealers this competition means added sales traffic. Contestants are being asked to visit your store for data on today's ranges. This will be a perfect opportunity to acquaint these contestants, and especially your local architects and designers, with the type of gas merchandise you sell. Remember, these designers carry tremendous weight in deciding what appliances will be installed in tomorrow's homes. With these planners thinking now along Magic Chef lines and your store becoming their headquarters for information, you've subconsciously sold an important part of tomorrow's market.

AMERICAN STOVE COMPANY
4301 Perkins Ave. • Cleveland 3, Ohio
New York • Atlanta • Philadelphia • Chicago
Cleveland • St. Louis • Los Angeles

Magic Chef

RED WHEEL GAS RANGES AND HEAVY DUTY GAS COOKING EQUIPMENT

LOOK FOR THE FAMOUS RED WHEEL ... THE MARK OF DEPENDABILITY

With a backlog equivalent to an entire pre-war year's production, we have started a . . .

QUARTER-MILLION DOLLAR EXPANSION PROGRAM

. . . including two additions to the factory, totaling 64,000 sq. ft., and new conveyer systems to speed line-production and delivery. Objectives: to double production and "get set" for delivery of new orders as received. ★ Thank you for the orders, and for your patience, which should soon be rewarded!

PAYNE FURNACE COMPANY
(One of the DRESSER Industries)
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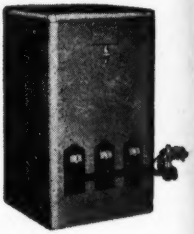

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of the gas or the pressure dur- the intermediate service should engineered so that orifice sizes will result in normal Btu in- s when the final gas is served. The two step method we believe advantages over the one step thod in that the customer's serv- is better during the entire nge-over period; however, the iod is longer. Cost is higher due more labor, overhead and trans- tation for the second call, but re is some saving in the cost sectionalizing the distribution tem and in using a smaller w.

The method which is adopted for change-over will depend largely preference, the size of the town, size of districts that can be nomically set up, and the crew ich can be obtained to handle job.

Orifices: On the earlier change- rs adaptors were used almost clusively to reduce the size of fices. Essentially, the adaptor is eyelet with a drilled orifice ich is riveted into the existing ifice cap. When an adaptor or any ed orifice is used, it is necessary cut off the adjustment needle on gas valve.

In use, the adaptor gives good rvice with controlled Btu inputs t has the objection that air shut- rs are very nearly closed and so, sily clogged. This may result in mplaint calls for smoky burners e to air shutters closed with lint d dust.

In some cases Btu inputs have en reduced by screwing back the isting orifice cap on the adjust- nt needle but too often, espe- cially with older equipment, these needles were too blunt and orifice cap drillings too large to give satisfactory air injection when the Btu input was reduced to proper rating. It is also difficult to judge proper inputs with a screw back adjustment so that the adaptor was usually preferred.

Primary Air Controls

In some of the more recent change-overs, different types of primary air control devices have been used. These devices are designed to reduce the velocity of the gas stream and so reduce the inspiration of primary air, thus requiring a greater air shutter opening. There are, in general, four types of primary air control devices which have many variations depending upon the manufacturer's particular ideas or design. These general types are:

1. *The counter sunk, or velocity reducing, orifice*: This type of orifice reduces the velocity of the gas stream by allowing it to expand in a channel larger in diameter than the orifice. The gas stream breaks close to the end of the velocity reducing channel and expands into a thicker gas stream of slower velocity. The gas stream is delivered into the air mixer at a greater distance from the air shutter than when straight orifice or adaptors are used.

The amount of velocity reduction and, therefore, the effect on air inspiration, can be controlled by the length of the velocity reducing channel.

2. *The double, or pressure reduc-*

tion, orifice: This type of orifice acts as a calibrating plug, the first orifice reducing the pressure in back of the second orifice. A slower stream of gas with less ability to inspirate air is delivered at a greater distance from the air shutter than with straight orifices or adaptors. The velocity reducing effect can be controlled by the sizing of the two orifices.

3. *The extended orifice*: This orifice delivers the gas stream close to or into the venturi throat. Air inspiration is reduced by moving the gas stream away from the air shutter and by increasing frictional or flow resistance to the air through reduction of the free area of the venturi throat. The velocity reducing effect can be controlled by the depth of insertion into the venturi throat.

4. *The angle orifice*: The action of this orifice depends on decreasing the velocity of the gas stream by impingement on the side of the air mixer, to reduce the inspiration of primary air. The amount of velocity reduction can be controlled by changing the angle of the gas stream from the axis of the burner. It is also affected by the design of the air mixer and is limited to an angle less than one at which gas will back out of the mixer. These four types are shown in Fig. 1.

All of these orifices have a point beyond which no further air injection is obtained no matter how wide the air shutter is opened. This control point varies with the type of orifice, the air mixer, the venturi throat and the burner port area.

The American Gas Associati
Research Bulletin No. 22, "Pri
ary Air Control Devices for
mospheric Gas Burners," descri
experiments with these types
primary air control devices on
series of eight burners with va
ous types of air shutters.

The use of some types of p
mary air control devices is limit
on a change-over because much
the equipment to be serviced w
installed from 15 to 30 years a
during which time, very lit
attention was given to the desi
of venturi throats.

The choice of orifice to be us
on a change-over should allow
air shutter opening at least
great, and preferably greater, th
used with manufactured gas. T
choice will also be influenced
the ease and the economics of t
installation and freedom fr
later complaints. This, of cour
will have to take into conside
ation the many types of equipme
that will be found in service.

Burner Port Area

The capacity of a burner ope
ating on manufactured gas is li
ited by the ability of the ventu
throat to inject primary air. Th
is not true on higher Btu a
slower burning gases, where t
limits are determined on one si
by the lifting of the flames fr
the burner ports and on the oth
side by yellow tips.

The average and high operati
limits of natural gas are 15,0
to 25,000 Btu per sq. in. of burn
port area.

It is therefore necessary to i
crease burner port area of a ma

ECONOMY SPHERES

A.S.M.E. Code constructed with standard approved fittings. Now available for storage and transport of either Butane, Butane-Propane mixtures, or Propane. Capacities of 150-250-430-1000 water gallons for above ground installations and truck mountings. Write for details.

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DALLAS TANK Company, Inc.

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you can get set w
the gas range line tha
known wherever it is s
as the line with more
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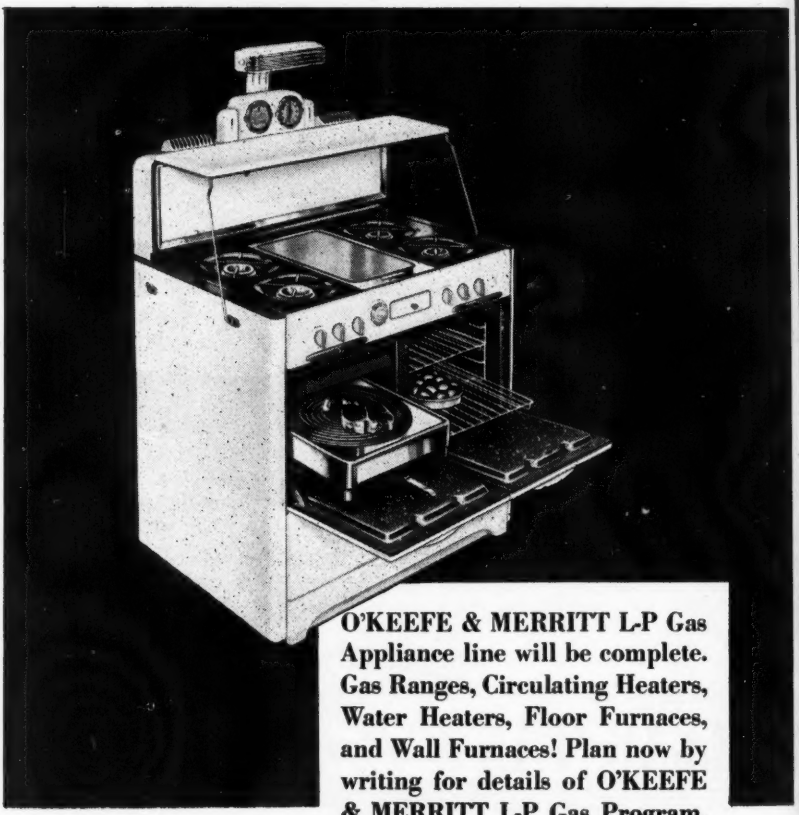

O'KEEFE & MERRITT L-P Gas Appliance line will be complete. Gas Ranges, Circulating Heaters, Water Heaters, Floor Furnaces, and Wall Furnaces! Plan now by writing for details of O'KEEFE & MERRITT L-P Gas Program.

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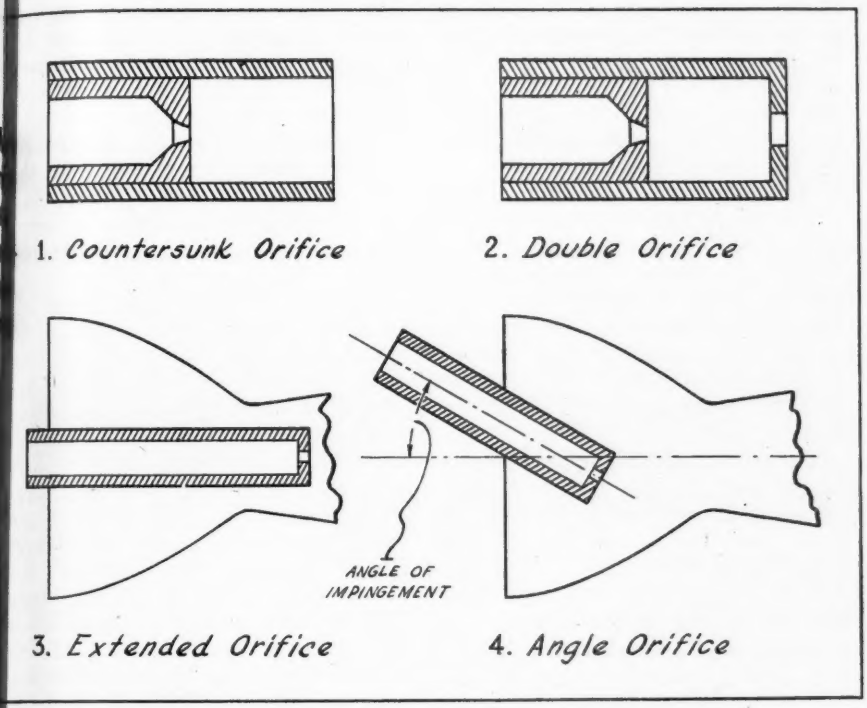

Fig. 1. Four types of primary air control devices.

NOTE: According to "Handbook Butane-Propane Gases"—Pages 196-197—recommended inputs of various gases are:

Manufactured gas .....25,000-50,000 Btu.
Natural gas .....10,000-20,000 "
Liquefied gases .....12,000-24,000 "

These figures are general. Recommended port sizes for conventional type atmospheric burners are given in AGA Testing Laboratories' Bulletin No. 7. "Domestic Gas Research."—Editor.

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ufactured gas burner when used with natural gas by increasing the size and in some cases the number of burner ports. Increased burner port area reduces the tendency of flames to lift and also increases air inspiration.

In the earlier change-overs, this was done usually by broaching, which resulted in a tapered burner port and some irregularity because broaching, at best, is not an easy job. More recently, electric drilling has been used.

Using an electric drill, it is possible to size burner ports so that

there is no torching of the burners at the center. To accomplish this, the inner ring ports are only cleaned out, while the other ports are drilled three to five drill sizes larger. In our experimental work we have found that the shorter a drill is chucked, the easier to use.

There are nitrided stove burner drills, made to specifications, which are much better than ordinary high speed drills for this work but, even so, are not good enough for many oven burners. The burner ports in oven burners are often so hard that the metal will dull the hardest drill.

Tungsten carbide drills seem to be the best for this use, and while these drills are expensive, we believe that their use for drilling oven burners will more than pay for them in the saving of time and the saving of stove burner or ordinary high speed drills.

Burner Inserts

Burner inserts are usually available for manufactured, natural or liquified petroleum gas. The objection to some burner inserts that have been made for natural gas is that in many instances the port area is so great that it is impossible to obtain proper change-over flames during intermediate service, with the result that when the final gas is served, a yellow flame is obtained.

It is not always necessary to purchase new inserts since port areas can be increased through alteration of the manufactured gas inserts. This alteration has consisted of either shortening the port length by milling off a portion of the port space, milling out every other rib, raising the insert with a washer or "Denver Ring," or drilling out every port with the insert in position.

We have found that turning off a portion of the port space on the inside of the insert, rather than on the outside, produces a more distinct inner cone and cleaner flame.

The disadvantage of removing burner inserts for conversion in the shop, is that the customer may have inserts in good condition replaced by others not as good as the originals. This will nearly always lead to complaint.

With the use of a velocity reducing orifice a very satisfactory flame can be obtained on "Magic Chef" burners by drilling the three ports over the lighter port and the six inside ports with a No. 37 drill. There is a tendency for the flames on the ports immediately over the lighter port to be smothered by the products of combustion from the lighter port, which is corrected by the above treatment.

CONCLUDED NEXT MONTH

Garth P. Kennedy Becomes Corken Chief Engineer

Garth P. Kennedy has joined the Corken Pump & Machinery Co., Oklahoma City, as chief engineer of the B-P Gas equipment department, according to Charles M. Corken.

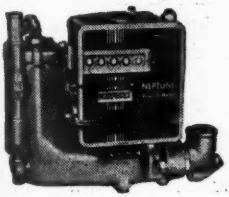
Mr. Kennedy's principal duties embrace the designing of liquefied gas bulk plant piping and the direction of field experiments the company is conducting in the movement of butane and propane.

WHY LET IT GET AWAY FROM YOU?

Every bit of LP-Gas that goes into your trucks represents potential profit. Every bit lost through over-measure deliveries, leaks and careless handling is income that never shows up on your books.

You can go a long way toward the elimination of such losses by installing Neptune Red Seal LP-Gas Meters on your trucks and loading racks. Accurate Neptune Meters prevent over-measure deliveries —register every gallon withdrawn. The meter-record you get not only enables you to uncover leak losses faster for prompt elimination but encourages drivers to "handle with care." At the same time, metering assures customers that doing business with you is good business.

Now is the time to stop profits from getting away. So . . . investigate fully the advantages of metering LP-Gas the Neptune way. Informative literature supplied on request. Write today.



Neptune Red Seal Meters accurately measure LP-Gas. Long-life measuring chamber has only *one* moving part. Space and weight saving 1¼ inch "Compact Type" 1D meter (at left) has a Print-O-Meter Register that prints delivery tickets. Other register types available.

NEPTUNE RED SEAL METERS

N-8-45

NEPTUNE METER COMPANY
50 West 50th Street • New York 20, N.Y.

Branches: Atlanta, Boston, Chicago, Dallas, Denver, Kansas City, Mo., Los Angeles, Louisville, Philadelphia, Portland, Ore., San Francisco, and Long Branch, Ontario.

CURRENT READING

• Reviews of new books, pamphlets and articles published in recent magazines of interest to technicians and executives in the liquefied petroleum gas industry. Those interested in reading any complete article or book should write to the publications named.

•

The Service of Selling—Published by The Cleveland Heater Co., 2310 Superior Ave., Cleveland 14, Ohio. A set of three books covering every problem of personal selling and directed to the home appliance salesman. Designed to give the salesman a grounding in selling principles and to help him develop the intangible qualities that create good customer relations, these books are made up from the sales experiences of Cleveland Heater Co. over a period of years and also comprise the suggestions of over 90 appliance sales managers.

Composed of three volumes covering: the principles of salesmanship; the selling process, and a companion volume on "Enthusiasm, Personality and Friendships." Two volumes, 250 pages each, companion volume bound in red cloth, complete price, $4.

Pressure Vessel Design Calculation—S. M. Jorgensen. "Petroleum Refiner," Oct., 1945, pp. 109-113. The main stresses in a pressure vessel are circumferentially, due to internal pressure, and longitudinally, due to wind and dead loads. These stresses being at right angles cannot be added together directly but must be combined into a resultant stress according to the rules of theory of elas city. Equal in importance to the sultant force is the allowable stre Except for the codes for vessels der vacuum, the official codes pressure vessels consider only ves parts subject to tensile stresses, that material strength alone gover the design of pressure vessels. As well known, this method is often sufficient in the design of tall, sle der towers. In such towers bendi moments due to wind loads, may pr duce compressive stresses, which w determine the wall thickness in t lower part of the vessel, in whi case the elastic stability of the ste plate is governing. Whereas the a lowable tensile stress is consta within certain temperature limit the allowable compressive stress a curved plate varies with its thic ness and bending radius. The exper mental data of L. H. Donnel are us in this article as basis for calcula ing allowable compressive stresses

Nomographs for Enthalpies Pure Hydrocarbons and Their Mi tures—E. G. Scheibel and F. Jenny. "Industrial and Engineerin Chemistry, Oct., 1945, pp. 990-99 Three nomographs present the va por and liquid enthalpies of indivi ual hydrocarbons and hydrocarb mixtures. The first gives the entha pies of normal saturated paraffi from methane to n-octane; the con struction is such that in a single se ting the enthalpy can be found for a the liquid components at a given tem perature and of all the component

Good Looking!

GOOD COOKIN'

It's 22 to 1 that your holiday turkey was roasted with

GAS
America's Preferred Cooking Fuel

•

And discriminating homemakers who want perfect cooking results—obtained with automatic ease and simplicity — will insist upon Cribbon & Sexton's famous

UNIVERSAL GAS RANGE
America's Preferred Cooking Choice

UNIVERSAL

CRIBBEN & SEXTON COMPANY
700 N. Sacramento Blvd., Chicago 12, Illinois

in the vapor at a given temperature and pressure. The second nomograph shows the liquid and vapor enthalpies of mixtures of light hydrocarbons based on the average molecular weight of the mixture. Joule-Thomson effects determined from this nomograph agree with all available data on hydrocarbon mixtures within the limits of precision of the nomograph and within the accuracy of the data. The third nomograph gives the liquid and vapor enthalpies of the heavier petroleum fractions. It is based on a correlation of the properties of the various fractions of an oil with a characterization factor of 11.8. The nomograph is accurate within the limits of reliability of the basic correlation.

Slow-Motion Pictures Throw New Light on the Cause of Knock in Fuel Combustion — "National Petroleum News," Oct. 3, 1945, pp. R-773, 774, 776. Camera developed by N.A.C.A. engineer photographs burning of fuel in engine cylinders at the rate of 40,000 frames a second; aids knock study.

Analysis Determines Control Variables for Distillation Systems—C. W. Perry. "Chemistry and Metallurgy," Oct., 1945, pp. 108-112. A rational method of analyzing process variables has been developed to aid in the application of automatic control to continuous distillation systems. Minimum control requirements may be readily determined by this method without the use of engineering approximation frequently necessary in this work. An effort is made to simplify the analysis of complex systems by applying this theoretical method to certain illustrative problems which are often encountered in practice.

NGAA Standard Table of Physi Constants for Paraffin Hydrocarb —"Oil and Gas Journal," Oct. 1945, pp. 115, 116. The table of phy ical constants presented represents effort to provide the natural-gasoli industry with authoritative numeric values for the physical properties the hydrocarbons commonly occu ring in the natural-gasoline rang Data on the intermediate paraffi and other types of hydrocarbons we omitted intentionally to make th table a more convenient tool a simple standard reference for analy ical and engineering computations the natural-gasoline industry.

The Chemical Constituents of Pe troleum—A. N. Sachanan. Publishe by Reinhold Publishing Corp., 194 Contents: Petroleum gases and na ural gasoline; physical methods determining hydrocarbons in distil lates; chemical methods of determin ing hydrocarbons in distillates; hy drocarbons in straight-run distillate hydrocarbons of synthetic distillate petroleum wax; oxygen compound sulfur and nitrogen compounds; re ins and asphaltic products; classifica tion of crude oils.

Heat Loss from Pipes Determine Graphically—C. F. Warner and G. A Hawkins. "Industry and Power," Sept., 1945, pp. 62, 63. The system de scribed and illustrated for calculatin heat losses from insulated pipes re quires only a small fraction of th time ordinarily needed.

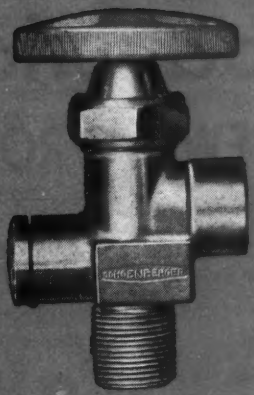
Extension of the Octane Scal Above 100 O.N.—"Journal Institute Petroleum," Oct., 1945, pp. 418-420. The re-calibration of iso-octane + ml. T.E.L.-Inp. gal. in n-heptane + ml. T.E.L.-Imp. gal.

SCHOENBERGER

DIAPHRAGM PACKLESS CYLINDER VALVES

The new Schoenberger Valve contains an exclusive and most important feature — the *Pressure Equalizer*.

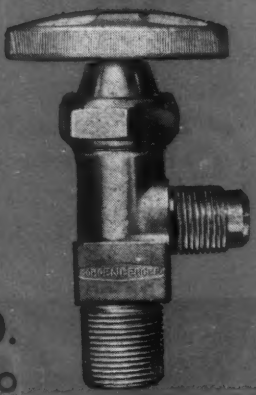
Fully protected by patents, the Pressure Equalizer eliminates any possibility of the lower stem sticking or "checking shut" under any operating condition. This automatic pressure release eliminates the need for a strong spring to open the valve against high pressure, thus a larger seat opening can be used. This means increased gas flow and faster cylinder charging.



Write for Bulletin P. B. 11

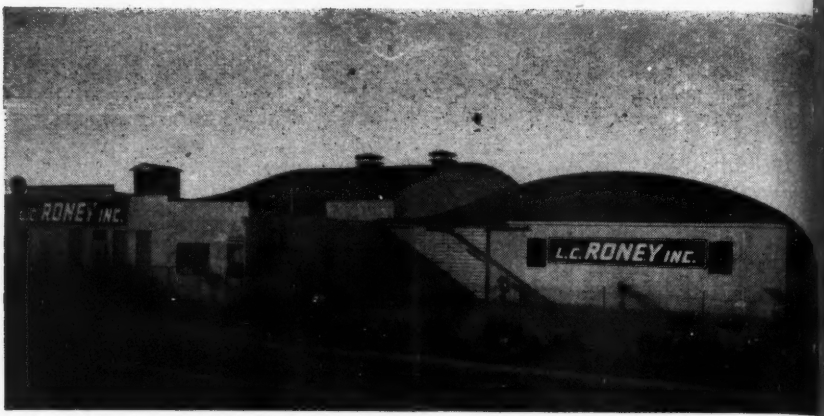
The rugged construction of the Schoenberger Valve assures long and satisfactory service. It is manufactured in a variety of types to meet the needs of producers and distributors of high pressure fuel gases.

"Listed Under Reexamination Service of Underwriter's Laboratories, Inc."



The W. J. SHOENBERGER CO.

8810 HARVARD AVE. CLEVELAND 5, OHIO



Production

BEGINS AT NEW L. C. RONEY PLANT

Production of liquefied petroleum gas equipment has begun at the new plant of L. C. Roney Inc. With the acquisition of this large, modern plant the Roney organization will soon be one of the largest manufacturers of a "complete line" of butane-propane equipment.

Manufacturing, sales and distribution facilities will be large enough in scope that delivery may be had on any type of equipment needed for the utilization of butane or propane gasses.

Many new products of superior design are scheduled to come from our large development department in the immediate future. The needs of old and new customers will be met as soon as machinery, materials and manpower permit.

Watch the L. C. Roney Line for New and Better Equipment

L.C. RONEY INC.

511 S. REDONDO BLVD. • INGLEWOOD, CALIF.

THE TRADE

C. E. SWEIVEN

K. L. PUFFER

Fisher Governor Co., Marshalltown, Iowa, manufacturers of automatic control equipment, announces the appointment of the Puffer-Sweiven Co. as its exclusive representative in the Texas Gulf Coast area, effective Nov. 15. The office address is—Room 605, Merchants & Manufacturers Bldg., Houston 2, Texas.

Kenneth L. Puffer has been associated with Fisher Governor Co. for more than 20 years, both as a member of the Marshalltown engineering and research staff and as a sales engineer in the field. Since 1933 he has served the Gulf Coast area from the Houston office and is well known to Fisher customers in that territory.

C. E. Sweiven has had seven years' field experience in selling and servicing Fisher control equipment. Prior to his affiliation with the Fisher organization, he spent several additional years in the automatic control field. For the past two years he has served the Fisher Company in the home office as sales engineer.

L. O. Reese has resumed his duties as vice president and general manager of the **Armstrong Products Corp.**, in Huntington, W. Va., after serving as a lieutenant in the U. S. Navy since 1942.

Former sales manager of Armstrong, Tom Sullivan, has also returned to the rank of "civilian" after spending 20 months overseas as a lieutenant in the Navy armed guard service. Mr. Sullivan will act as a special field representative for Armstrong products.

Noma Electric Corp., large producer of Christmas tree lights and novelty lighting effects and toy manufacturer, has purchased the Estate Stove Co., Hamilton, Ohio, one of the country's best known makers of gas

Principal figures in the sale of The Estate Stove Co., Hamilton, Ohio, to Noma Electric Corp. Standing, Henri Sadacca, president of Noma and (seated) David Kahn, president of Estate.

and electric cooking ranges and one of Ohio's oldest industries, it has been announced by Henri Sadacca, president.

Mr. Sadacca stated that Noma paid $2,000,000 cash and 35,000 shares of Noma common stock in exchange for all common and preferred shares of Estate stock. David Bertrand, Albert and Lucian Kahn, descendants of the founders of Estate Stove Co., and the four principal stockholders, will obtain the majority of the Noma stock and will maintain a proprietary interest in the company.

David Kahn, president and general manager of Estate since 1924, will continue in office, as will all other officers of the company.

The appointment of Robert C. Allen, Jr., as manager of the Kansas City, Mo., factory branch was recently announced by J. F. Ray, director of sales, **General Controls Co.**, Glendale, Calif.

Mr. Allen will devote his entire time to serving users of automatic pressure, temperature and flow contr in Missouri, Kansas, eastern Nebr ka and western Idaho.

Mr. Allen was in the Army three and one-half years. Prior the to he was manager of the Hous and Dallas, Texas, General Contr factory branches for three years.

A contest for the design of "Gas Range of Tomorrow," involvi 16 cash awards totaling $18,000, be conducted by the **American Sto Co.**, S. E. Little, vice president, announced. It will be sponsored "Architectural Forum," with Geor Nelson, of the American Institute Architects, as professional advisor.

The cash awards are broken do as follows: 1st prize, $5000; 2 prize, $3000; 3rd prize, $2000; thr prizes of $1000 each; and 10 priz of $500 each. The contest opened November and closes March 1, 19

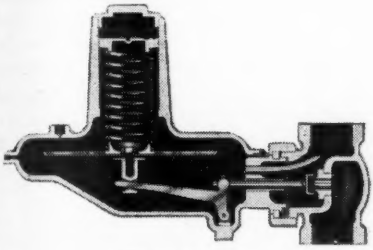
The competition booklet, which a incorporates the basic technical da required in initiating a design, m be obtained free of charge by writi

This Universal p range comprised t bulk of the freig weight on the histor making trip of Am ican Airlines on th first commercial a flight direct from Ch cago to London. Joh E. Bogan, Cribben Sexton Co. sales ma ager, is shown right.

FISHER LP GAS REGULATORS

FOR INDUSTRIAL AND COMMERCIAL APPLICATIONS

★ **FOR LOW REDUCED PRESSURES:**



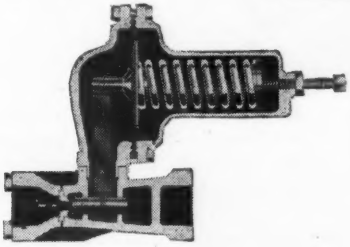
SERIES 730

Series 730—for all types of low pressure gas pressure reduction on industrial or commercial applications. Well known throughout the industry for its dependability, close regulation and long life.

SPECIFICATIONS

Construction—Iron body, composition disc inner valve, bronze orifice, valve post and disc holder, other internal parts cadmium plated. Valve disc and orifice readily accessible. Large area diaphragm. Furnished with or without built-in relief valve.
Inlet Pressures—Up to 150 lbs. per sq. in.
Reduced Pressures—4" water column to 7 lbs. per sq. in.
Pipe Sizes—¾" to 2" screwed globe body.

★ **FOR HIGH OR INTERMEDIATE PRESSURES:**



TYPE 630

Type 630—for pounds to pounds reducing service on all industrial and commercial applications—features unusually large capacity as well as extremely accurate and dependable control.

SPECIFICATIONS

Construction—High-tensile iron spring housing and valve body, malleable iron inlet adapter, brass or stainless steel orifice, other internal parts cadmium plated. Two interchangeable diaphragm assemblies for high or intermediate reduced pressures. Valve disc and orifice readily accessible for inspection or removal.
Inlet Pressures—Up to 1000 lbs. per sq. in.
Reduced Pressures—5 to 150 lbs. per sq. in.
Pipe Sizes—1" and 2" screwed connections.

FISHER

GOVERNOR COMPANY
979 FISHER BUILDING
Marshalltown, Iowa

to George Nelson, A.I.A. c/o "The Architectural Forum," Department P-3, Empire State Building, 350 Fifth Avenue, New York 1, N.Y., mentioning the Magic Chef design contest.

At a special meeting held in Pittsburgh Dec. 3, stockholders approved the recommendations of the board of directors that the name of the Pittsburgh Equitable Meter Co. be changed to the **Rockwell Manufacturing Co.**

W. F. ROCKWELL

Directors of the Pittsburgh Equitable Meter Co. will continue as directors of the Rockwell Manufacturing Co. Col. Willard F. Rockwell, for whom the company is named, is chairman of the board and president.

The Pittsburgh Equitable Meter Co. name will be continued as a subsidiary of the Rockwell Manufacturing Co., marketing measuring equipment for water, gasoline, oil and other liquids, manufactured in plants located in Pittsburgh, Brooklyn and Hopewell, N. J.

In addition, the Rockwell Manufacturing Co. is the parent company of the Merco Nordstrom Valve Co., Oakland, Calif., whose name has been shortened to Nordstrom Valve Co.

Officers of the Rockwell Manufacturing Co., in addition to Col. Rockwell, are W. F. Rockwell, Jr., vice president and general manager; J. Frank Drake, W. S. Potter and A. J. Kerr, vice presidents; H. A. Phillips, vice president and secretary; Edgar W. Meyers, treasurer, and E. W. Meyers, Jr., controller.

N. M. Dunning has recently been appointed factory representative for **Superior Valve & Fittings Co.** and will be responsible for sales in the territory including the states of Kentucky, West Virginia, Ohio, eastern Michigan, western Pennsylvania, western New York and eastern Canada.

N. M. DUNNING

Since the outbreak of World War II and until the present, Mr. Dunning served with the Philadelphia Ordnance District as chief supervisor of production personnel training, deputy director of production and acting director of production.

He will make his headquarters at the factory in Pittsburgh, Pa.

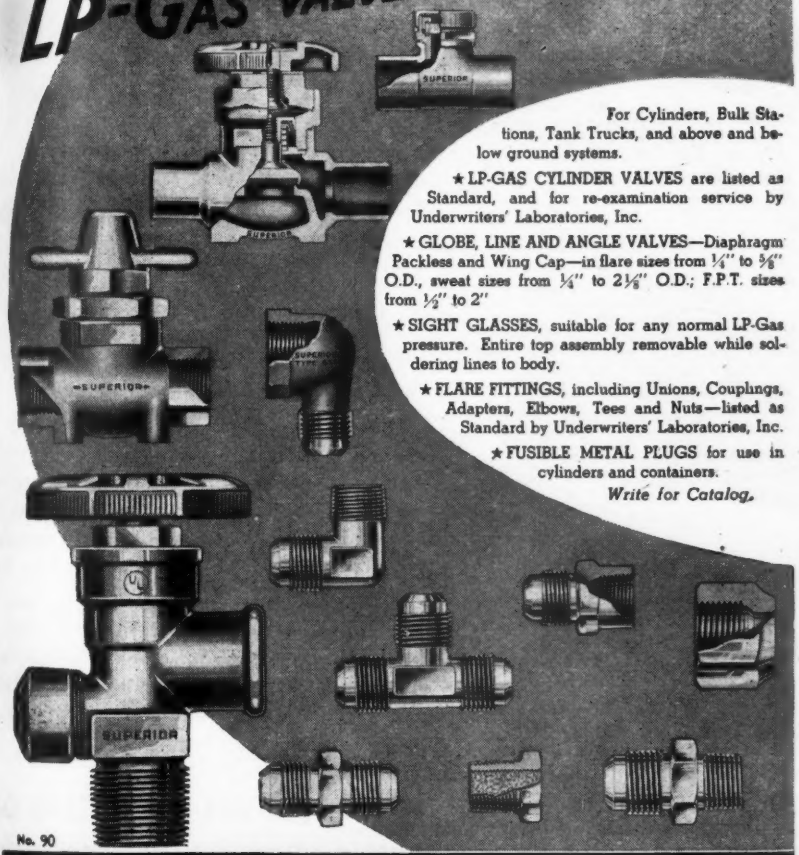
Marshall W. Batchelder, with long experience in the stove and appliance field, has been appointed sales representative for the **Caloric Gas Stove Works** and assigned to the South Chicago territory. The announcement was made by Julius Klein, general sales director.

For the last 20 years, Mr. Batchelder had been associated with the American Stove Co. In his new connection, he will specialize in the new Caloric luxury line.

Lieut. A. C. Nydegger, U.S.N.R. has been relieved of active duty after more than two years in the Navy and on Dec. 1 returned to the Milwaukee office of the **Blackmer Pump Co.** as manager.

Mr. Nydegger served as an engineering officer and had attained the grade of lieutenant senior grade.

SUPERIOR
LP-GAS VALVES AND FITTINGS



For Cylinders, Bulk Stations, Tank Trucks, and above and below ground systems.

★ LP-GAS CYLINDER VALVES are listed as Standard, and for re-examination service by Underwriters' Laboratories, Inc.

★ GLOBE, LINE AND ANGLE VALVES—Diaphragm Packless and Wing Cap—in flare sizes from ¼" to ⅝" O.D., sweat sizes from ¼" to 2⅛" O.D.; F.P.T. sizes from ½" to 2"

★ SIGHT GLASSES, suitable for any normal LP-Gas pressure. Entire top assembly removable while soldering lines to body.

★ FLARE FITTINGS, including Unions, Couplings, Adapters, Elbows, Tees and Nuts—listed as Standard by Underwriters' Laboratories, Inc.

★ FUSIBLE METAL PLUGS for use in cylinders and containers.

Write for Catalog.

No. 90

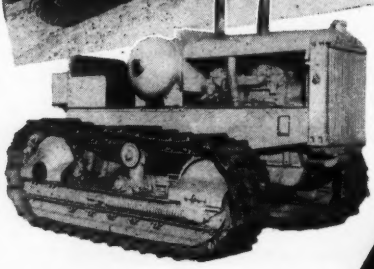
SUPERIOR VALVE & FITTINGS COMPANY
PITTSBURGH — 26 — PENNSYLVANIA

OFFICES IN PRINCIPAL CITIES • STOCKS CHICAGO (6) • LOS ANGELES (15) • JOBBERS EVERYWHERE

ENSIGN

BUTANE CARBURETIO

ON THE Toughest Jobs



ENSIGN-equipped trucks are today doing the toughest jobs. Getting there faster with the biggest pay load at the least expense—that's what counts.

Butane carburetion equipment sold and installed by qualified Ensign dealers is the finest merchandise available.

Results reported from many ENSIGN Butane installations in all parts of the country prove the practicability of Butane as an engine fuel—lower fuel costs, greatly reduced oil consumption and reduced maintenance.

ENSIGN, carburetor builders for more than thirty-three years, offers a complete line of quality carburetion for every engine need. Factories at Los Angeles and Chicago and dealers everywhere welcome your problems and inquiries

● **CARBURETORS FOR BUTANE OR**
COMBINATION BUTANE & GASOLINE

Write us for complete information. Our competent engineering staff is at your service.

ENSIGN

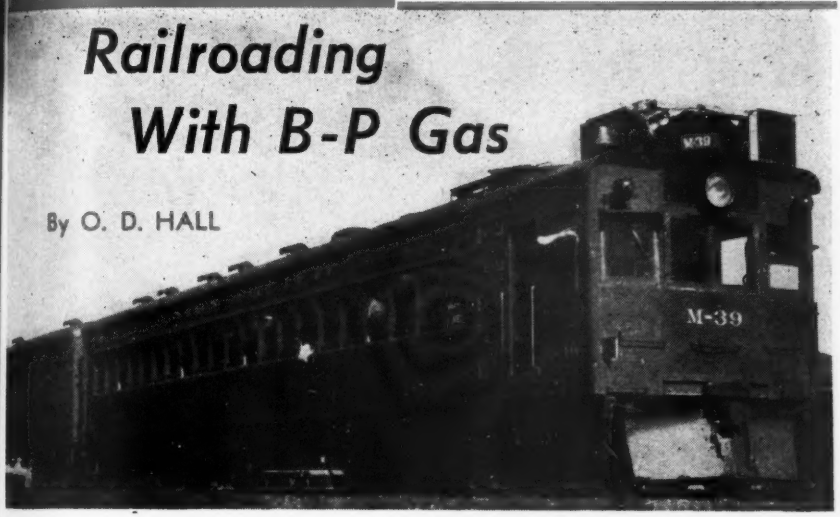
CARBURETOR C

HUNTINGTON PARK, CALIF. • CHICAGO,

POWER

Railroading With B-P Gas

By O. D. HALL



GREATER fuel economy and reduced maintenance cost are two principal reasons why the Union Pacific Railroad Co. uses liquefied petroleum gas in operation of several trains on its system.

Other advantages of this fuel cited by J. Gogerty, general superintendent of motive power and machinery in Omaha, include increased engine power and no dilution to lube-oil systems.

The Union Pacific is now operating on its system eight gas-electric motor cars, 46 self-contained air conditioning and electricity equipped cars consisting of separate ice-engine and engine generator units, and 19 cars equipped with ice-engine units. Six of its dining cars are equipped with propane gas toasters.

The company operates two of these motor trains out of Salina, Kan., an important division on its trans-continental system. Hall-Scott and Winton B-P Gas engines are operated on a mixture of 25% propane and 75% butane.

The engines operated out of Salina have 235 and 275 hp., and pull short trains, one trip each way per day. One of these operates between Salina and Beloit, Kan., about 70 miles northwest of Salina, and the other runs to Plainville, Kan., about 125 miles northwest of Salina. The latter is a motor trailer-type train. The Beloit train operates as a single unit.

L. B. Brensinger, district foreman at Salina, said that these trains formerly were operated on

Right
for dispensing
BUTANE-PROPANE
Because it is . . .

safe
accurate
efficient

You will find ADEL'S modern high-pressure Liquefied Petroleum Gas Dispensers, Pumps and accessories *right* for your operational needs. Thorough field surveys . . . intensive studies of all state codes, the rigid requirements of the Bureau of Weights and Measures and the National Board of Fire Underwriters . . . have dictated the design, construction and efficient operating characteristics of ADEL'S handling, metering and dispensing equipment. Write or wire ADEL for catalog and installation information. ADEL Western and Pacific Coast field representatives, SHIELDS-HARPER, Seattle, Portland, Oakland, Los Angeles; Central and Midwest states, UNITED PETROLEUM GAS CO., Chicago.

ADEL

Please address all inquiries to . . .
ADEL PRECISION PRODUCTS CORP., 10600 Van Owen Street, Burbank, California

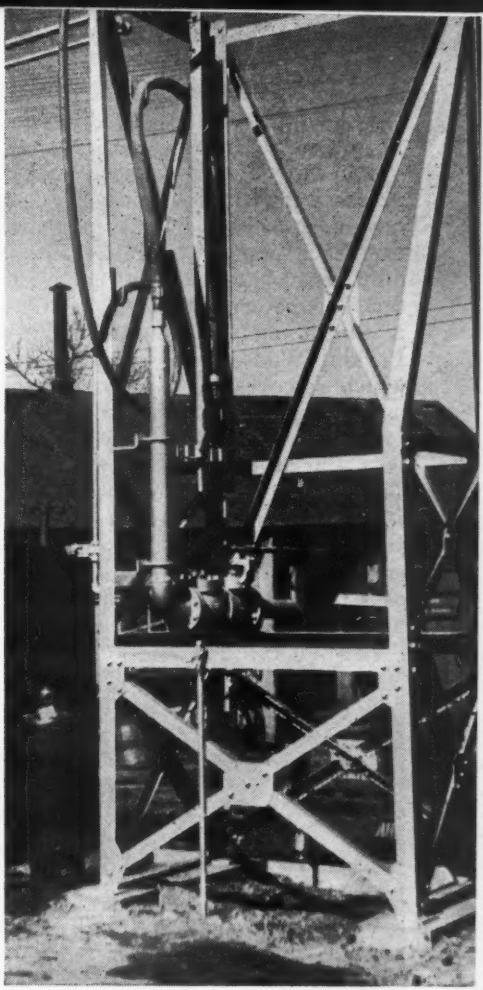
distillate and gasoline. Principal economies in B-P Gas operation are found in the elimination of carbon, increased lubrication efficiency and lower power maintenance costs, Mr. Brensinger said. The trains use about 6000 gallons of B-P Gas per month. The engines are equipped with Ensign carburetion units.

Has 18,000-Gal. Storage Tank

The trains are fueled from an 18,000-gallon bulk storage tank, installed in 1939 by Parkhill-Wade, of Los Angeles. The horizontal-type tank is designed for 200 lbs., A.S.M.E. working pressure; is 52 ft., 19 in. long and 8 ft. in diamater. It is set on two concrete piers 6 ft. above the ground. It is located 30 feet from switch tracks at the West end of the Salina Union Pacific shop area at Fifth and Decater streets.

Equipment on the storage tank includes two 4-in. American Car & Foundry Co. safety valves, connected to about 20 ft. of 6-in. pipe, to guard against overfilling or excess pressure. All tank outlets are equipped with excess flow check valves so that the gas will not be emptied from the storage tank in case of a broken line. All fittings are grouped within one railed-in area on top the tank, which is reached from the ground by a ladder. A heating coil has been added to raise the vapor pressure for unloading.

During fall months a 50-50 butane-propane mixture is placed in the tank but proportions of the two fuels vary with the seasons. The B-P Gas is brought in from the Phillips Petroleum Co. refinery at Bartlesville, Okla., in tank car lots of from 10,000 to 11,000 gallons. Usual route is over the Santa Fe to McPherson, Kan., then over the Union Pacific to the unloading switch in the yards of the latter railroad at Salina.



Liquefied petroleum gas unloading rack in Union Pacific Railroad Co. yards at Salina, Kansas.

Directly under the storage tank

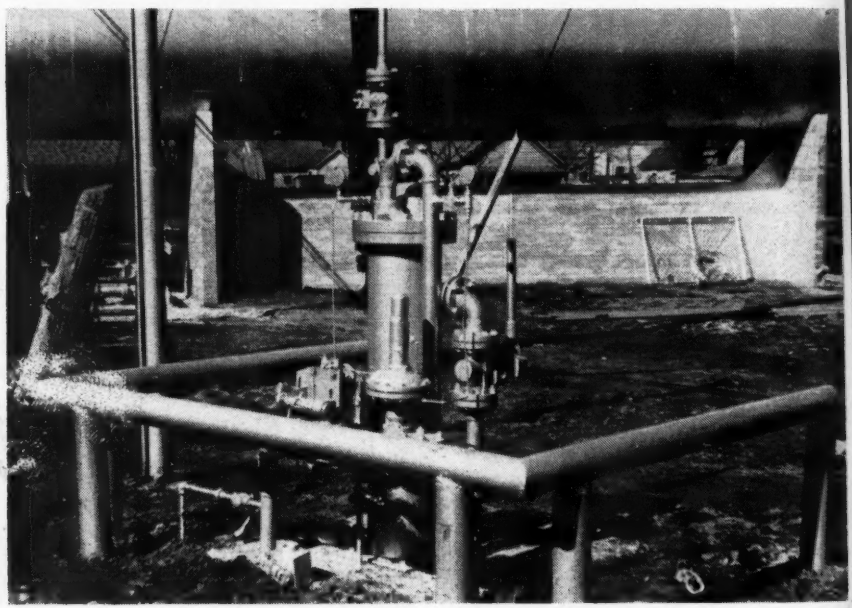
at the point nearest the tracks is the pumping unit for loading and unloading at the same time.

The two Byron-Jackson hydro-press weatherproof pumps each have a capacity of 50-gals. per minute. Each pump is powered with a 5-hp., explosion-proof, electric motor. The metering device consists of a Smith meter integral with a Parkhill-Wade vapor eliminator which removes all vapor from the metering apparatus.

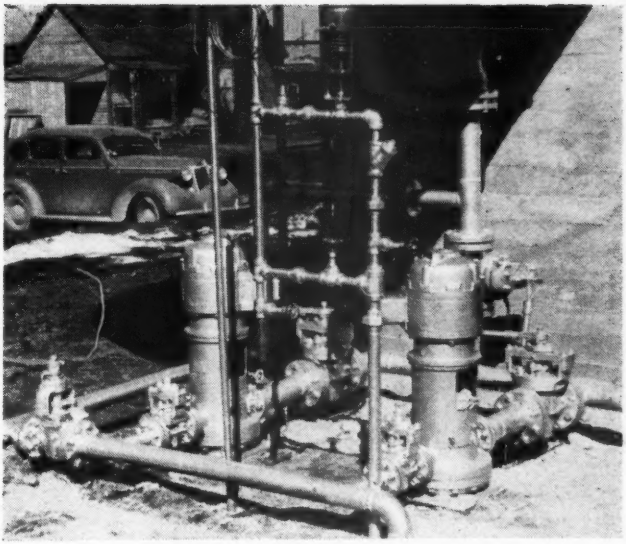
Adjacent to the metering device is a Parkhill-Wade safety control. This includes a single lever which, when raised, first operates the pump starter switch, then opens the main control valve, allowing fuel to pass through the meter to the fuel tank of the B-P engine being filled. The metering and filling control apparatus is enclosed within a heavy pipe guard rail for collision protection.

Fueling Lines Run Underground

This meter device is located about midway between the bulk storage tank and the unloading rack. This location makes it possible to meter all B-P Gas delivered from the car unloading spot to the storage tank. Train fueling lines, one on each side of the track, are run underground from the metering device and delivered into the train motor tanks through 1¼-in. dispensing hoses. These hoses have



Meter unit located about midway between the storage tank and unloading rack.



Pumping installation beneath 18,000-gal. B-P Gas Storage tank in the Union Pacific yards.

filling nozzles designed to work in conjunction with the tank filling valves.

The unloading rack, through which fuel is transferred from the tank car to the storage tank, is lo-

FOR GREATER POWER *Specify*

TATTERSFIELD MANIFOLDS

Illustrated is the large International (K-11) butane-propane manifold—one of the Tattersfield Line. It insures greater power, more efficient operation. For satisfied customers, specify Tattersfield manifolds.

SIX REASONS WHY

1. No Hot Spots
2. Even Distribution
3. No Restrictions
4. Proper Finning
5. Larger Internal Area
6. Greater Efficiency

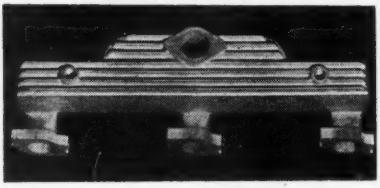
BU-SEAL Compound offers a safe, sure defense against leaks. A modern, new type sealing compound for LP-Gas valves and fittings, **BU-SEAL** should be a "must" on every dealer's bench. If you haven't used **BU-SEAL**, order some today!

(Now in Stock)

ELECTRIC AND CARBURETOR ENGINEERING CO.

2713 E. 8th Street — *"Pioneers of the Butane Industry"* — Los Angeles 21, Calif.

Power . . . !



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BU-POWER MANIFOLDS

ARE NOW ACCEPTED AS STANDARD EQUIPMENT ON ALL TYPES BUTANE-PROPANE ENGINE CONVERSIONS

- 73% more volume
- 60% lower operating temperatures
- Perfect distribution to all cylinders

ELLIS MANIFOLD CO.

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ALGAS

BUTANE-PROPANE

- ★ Carburetion
- ★ Gas Systems
- ★ Complete Engineering Service

AMERICAN LIQUID GAS CORPORATION

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The News Gets Around

CENTURY

The Best in Butane Carburetion

18 YEARS-- Manufacturing BUTANE-PROPANE CARBURETION

Century Gas Equipment Co.

11188 LONG BEACH BLVD.
LYNWOOD, CALIF.

It's DIX in '46

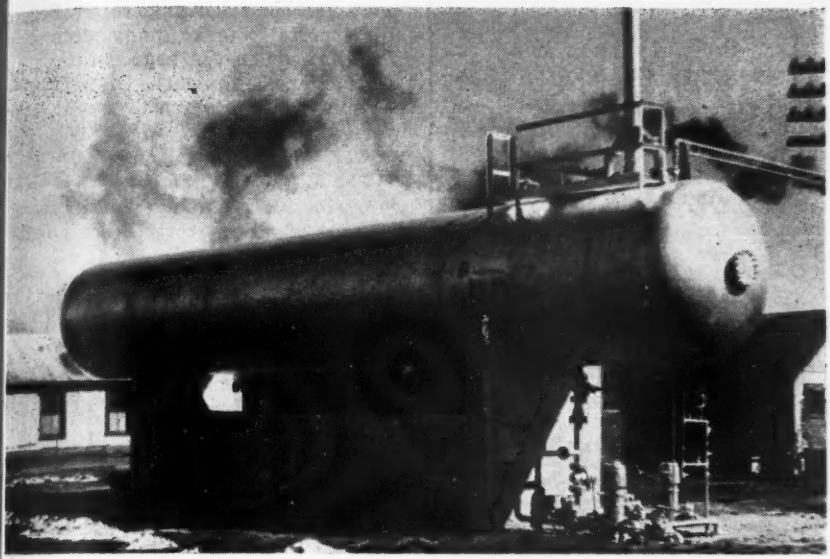
The New DIX Butane-Propane Carburetion Unit will be in full scale production early in 1946. The many outstanding features to be found in this unit will help you make carburetion a new and important part of your business . . . We appreciate your interest and look forward to serving you.

- - -

Han probado ustedes BUTANE como combustible? En caso que no, escribanos.

DIX MANUFACTURING CO.

3447 E. Pico Blvd. Los Angeles 23, Calif.
Export Office—80 Broad St.,
New York City 4



This 18,000-gal. storage tank at Salina, Kan., supplies B-P Gas for Union Pacific Railroad Co. trains and equipment operating through Salina.

cated on the unloading switch. It is about 15 ft. high and is constructed of 3x3-in. steel-angle iron. Equipment includes about 10 ft. of 3-in. liquid line hose and about the same length of 1¼-in. vapor-return hose. Since original installation, an improved heat exchanger and a high pressure reducing valve have been added by the Ensign Carburetor Co.

The Union Pacific uses straight propane in operating its self-contained air conditioning equipment. Four-cylinder Waukesha Manufacturing Co. ice-engines and engine generators, using Ensign equipment, give increased compression so that operation on propane gas is extremely economical.

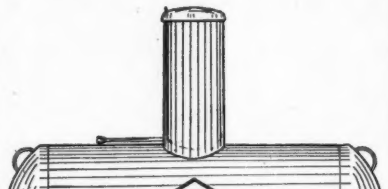
Dealer Rates Butane Best For Many Power Needs

Internal combustion engines converted to burn butane or propane are playing an increasingly important part in oil well drilling in East Texas, states E. S. Beggs, of the L. P. G. Equipment Co., and Texas and Louisiana distributor of Century carburetors, on a recent visit to Los Angeles. Mr. Beggs was on the West Coast to effect further contracts with the manufacturers of B-P Gas appliances and equipment.

Butane and propane are ideal fuels for oil well drilling and a growing number of companies are equipping their rigs with converted engines to take advantage of the opportunity which B-P Gases give to a setup in outlying areas where natural gas is

OVER or UNDER

Our Complete Domestic or Industrial Gas Systems, either above ground or under ground, are specially designed.



Southern Gas System sizes range from 150 water gals. to 1000 water gals. A size to fit your needs.

Truck Tanks and Transports A Specialty

Gas SOUTHERN Systems

SOUTHERN GAS AND EQUIPMENT CO.

Atco Bldg., Tulsa, Okla.

not available, accordings to Mr. Begg. He expects to make many more such installations in the near future.

Another large source of new business is equipping tractors with converted engines for rice fields and power plants for cotton gins.

The L.P.G. Equipment Co., started in business 11 years ago and its recent opening of a new store at Sealy is the result of the expansion of business in that territory, which is about 45 miles from Houston.

The company now employs seven men and has four new delivery trucks in operation. Additional trucks are being constructed.

Tank Sales, Dallas, New Distributor for Adel

Raymond J. Kirby, project manager, B-P Gas division of the Adel Precision Products Corp., Burbank, Calif., announces the appointment of Tank Sales & Equipment Co., 3406 Main St., Dallas, Texas, as a southwest distributor for Adel dispensers, pumps and accessories.

Effective Jan. 1, Tank Sales & Equipment began marketing operations for Adel in Texas, New Mexico, Arkansas, Louisiana and Mississippi.

ICC Again Postpones Rate Case Effective Date

The effective date of the Interstate Commerce Commission's order in the Southeastern rail rate case has now been postponed until March 11 and it is expected that it will have to be again postponed, with the net result that the new rates probably will not be filed before next fall, according to Kenneth H. Koach, chairman of the rate case committee.

This will be the third season during which Southeastern firms have enjoyed the reduced weights at the old rates.

L. C. Roney Buys New Plant For Expanded Operations

L. C. Roney, Inc., Los Angeles, has acquired the plant, machinery and facilities of the Olmstead Manufacturing Division of the Southwest Development Co., located at 511 S. Redondo Blvd., Inglewood, Calif.

L. C. RONEY

This new and modern plant, which is already being used for the production of Roney liquefied petroleum gas equipment, covers approximately 50,000 sq. ft.

With the acquisition of the new plant and its greatly expanded production facilities, the L. C. Roney organization becomes one of the nation's largest manufacturers of equipment for the butane-propane industry. Their line of equipment, soon to be complete, will include regulators, cylinder valves, excess flow check valves, line valves, back pressure check valves, relief valves, vapor differential compressors and manifolds.

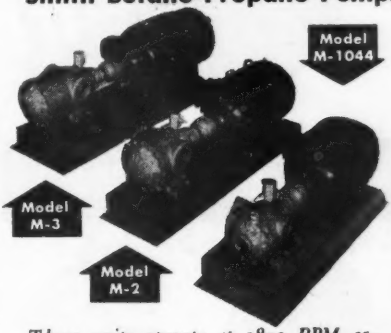
L. C. Roney, who formed and headed the original organization, will continue as active head of the business, holding the position of executive vice president and general manager. A. B. Ruddock is president and A. A. Hardison is vice president in charge of production.

Justus Krappe is in charge of the engineering development department.

One of the features of the newly-formed company will be its modern engineering and development department, planned to be one of the most complete in the industry. Under the direction of Mr. Krappe, who has had

PRODUCTION PRODUCTION

Doubles on New Models of Smith Butane-Propane Pumps



These units operate at 1800 RPM capacities from 20 GPM to 100 GPM.

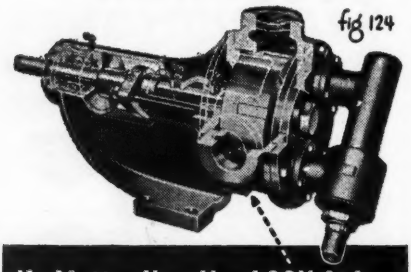
Due to the emergency demand during the war, Smith Butane-Propane Pumps were manufactured without interruption. Since the end of the war, the demand for new models of Smith Pumps has more than doubled—and the production capacity of the Smith factory has been increased to meet this urgent requirement, as well as to assure prompt delivery.

There are six new models of modern pumps to fill every requirement. These units are available for truck mounting, direct-connected to power take-off or for bulk plant service with direct connected motor drive.

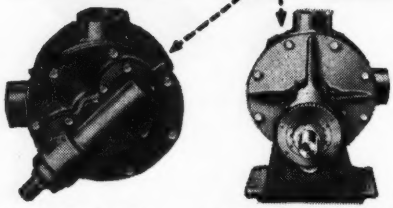
Write for prices and delivery information.

SMITH Precision Products COMPANY

1135 Mission Street South Pasadena, Calif.



No Matter How You LOOK At It..



VIKINGS ARE "TOPS"
In The Rotary Pump Field!

Viking Rotary Pumps outsell all others because Vikings are simple in design and ruggedly constructed to provide dependable, carefree service.

Write today for Bulletin Series 2300B which illustrates and describes Viking Rotary Pumps widely used in the butane-propane industry.

★

VIKING
PUMP COMPANY
CEDAR FALLS, IOWA

extensive training in this type work, this department will be kept busy in the development of new and improved equipment for the utilization of B-P Gas. One of the first products to come from this division, and soon to be offered to the industry, will be a new, patented, compounding regulator. Also, a new, patented, compact unit for underground systems should be in production shortly after Feb. 1.

Company officials hope to have the plant in operation 24 hours a day by Feb. 1. Some sections are already on this schedule. After that date, production facilities and material permitting, the company will be in a position to supply liquefied petroleum gas dealers in every part of the world.

Arrangements have been consummated whereby the Roney organization becomes the national distributor for O. I. C. valves for the liquefied petroleum gas industry, built by Ohio Injector Co. of Wadsworth, Ohio. Featured will be a No. 546 line valve and No. 547 angle valve. Valves will be in stock and available in all pipe sizes from ⅛ to 3 inches.

Mr. Roney states that these valves are so designed that no restriction is encountered in any of the different sizes. They are neoprene trimmed, back seating, which eliminates pressure on the packing in the open position. This also permits repacking stem without closing valves.

All orders on these valves will be placed through L. C. Roney, Inc., in Inglewood, Calif.; however, shipments may be made direct from Wadsworth in order to expedite delivery.

Test Case Filed Against Arkansas Labor Department

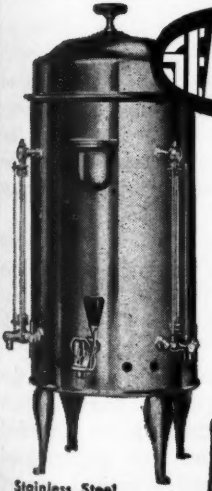
Cecil McPherson, of Clinton, Ark., has filed suit in Pulaski Circuit Court in Little Rock, to restrain the Arkansas Labor Department from enforcing

OUR 60th YEAR
OF DEPENDABLE SERVICE

DESIGNERS and
FABRICATORS of
A COMPLETE "MOSCO" LINE
OF LP-GAS CONTAINERS

MOSHER STEEL CO.
DALLAS HOUSTON TYLER

AN OUTSTANDING LPG LOAD BUILDER



Stainless Steel Sealweld Urn

SEALWELD

AMERICA'S FIRST *Burnout-proof*
COFFEE URNS

• Sealweld urns eliminate leaks and burnouts. The vital seams of these urns are *electrically welded* into a permanent watertight seal by the Sealweld process. Seams cannot melt, are practically indestructible and will last as long as the urn. Sealweld urns are made of sanitary, corrosion-resistant stainless steel — long-lasting and easy to clean.

SEND FOR SEALWELD CATALOG describing these profit-making load-building appliances. Gives complete specifications of single urns, twin urns and batteries.

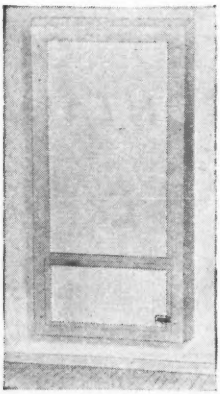
*Reg. U.S. Pat. Off.

S. BLICKMAN, INC.
MANUFACTURERS OF FOOD SERVICE EQUIPMENT
2101 Gregory Ave., WEEHAWKEN, N. J.

Williams Vented
WALL WARMOLATOR

for New Residences.

For Butane, Propane or Natural Gas.



Dual type. 45,000 B.T.U. input. Color, light Ivory. Automatic Temperature control with Wall Thermostat, or for manual control with pilot lighter. Easily installed. Working parts easily accessible. For 2 x 4 inch studs. No pit or basement. Approved by A.G.A. Eligible for F.H.A. loans.
Size of face, 25¼" wide, 50" high.
Size of recess in wall, 23¾" x 48" high.

Also made in Single type.
Ask for circular, form 211.

WILLIAMS
RADIATOR COMPANY

Sales Office: 3115 Beverly Blvd.
Los Angeles 4, Calif.
Factory: 1821 Flower Street
Glendale 1, Calif.

certain regulations adopted by its Advisory Boiler Board which he described as "working a hardship on all small independent butane gas dealers."

The complaint charges that supplementary rules adopted by the Department Nov. 20 are illegal and unconstitutional.

M. L. Blair, state boiler inspector, said the regulations were adopted on recommendation of the Butane Dealers Association of Arkansas.

Among the rules under attack is one requiring every butane dealer to execute a $20,000 bond, increased from $5000 previously required.

Another seeks to require installation men to pass written examinations before receiving certificates of competency. Candidates for examination are required to file recommendations from two or more persons who have certificates of competency and who have made installations for at least a year.

A. C. Maynard Returns to Shell After Long War Service

After an absence of three years, Al Maynard returns to his old job with Shell Oil Co., San Francisco, as head of the liquefied petroleum gas section, Technical Products Dept., for the Pacific Coast. His office will again be in the Shell building in San Francisco.

Mr. Maynard served with the navy as industrial conservation officer at the Mare Island Navy Yard. He was released to inactive duty with the rank of Commander.

He is well known throughout the industry for his active participation in all affairs pertaining to liquefied petroleum gas and has contributed much to a safe and practical use of the fuel.

Butane & Propane

Carter

Carter high quality Butane and Propane are unsurpassed as domestic and industrial fuels. Bulk loading points, St. Elmo, Illinois, Seminole and Stonewall, Oklahoma. Wholesale only. Your inquiries are solicited.

THE CARTER OIL COMPANY

TULSA, OKLAHOMA

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Check enclosed ☐ *Please send bill* ☐

NAME_____ POSITION_____

COMPANY_____

STREET _____ CITY _____ ZONE _____ STATE _____

Anchor Company Organized To Export Petroleum Products

David L. Gordon and W. C. Hildebrand, Jr., are associating with the Anchor Petroleum Co., of Tulsa, to form the Anchor Oil Co., according to W. A. Baden, vice president.

The newly-formed company, with offices in Houston, Texas, will handle world-wide distribution of all petroleum products, including liquefied petroleum gas. The plan of operation, states Mr. Baden, in addition to domestic shipping, will include coastwise and export shipping to Europe, Asia and all South American countries.

Mr. Gordon, well known in the oil business, was a practicing attorney in Dallas and Houston from 1934 to 1938, specializing in general oil and gas law. In March, 1938, he joined

W. C. HILDEBRAND

DAVID L. GORDO

the domestic and export marketin firm of Refiners Export Co., Inc., a vice president and general manage Then in 1942 he became Gulf Coas representative for Anchor Petroleum This position placed him in charg of operations of the firm along th Texas Gulf Coast. Three years late

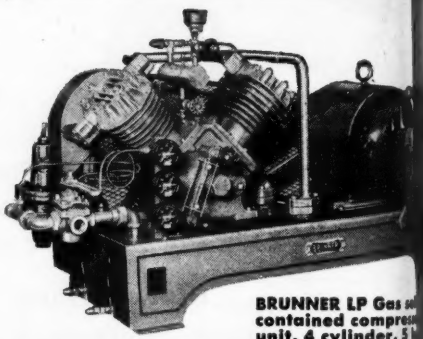
YOU LOSE 500 TO 1000 LBS.
of LP Gas in every tank car unloaded

... if you salva residue v

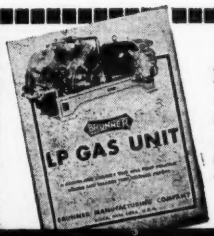
You pay for this residue vapor poundage and for its transportation! It cannot be recovered by an ordinary liquid pump, but it can be recovered with the Brunner LP Gas Unit, a compressor assembly that pumps volatile liquids and salvages their residue vapor. Unloading, too, is speeded. When you buy a Brunner LP Gas Unit you buy a pump that has world wide acceptance and is the best for the purpose, regardless of the price paid. The savings affected liquidate the investment in a short time. On any liquid petroleum handling problem consult:

BRUNNER MANUFACTURING CO.
UTICA 1, NEW YORK, U. S. A.

ARMY E NAVY
BRUNNER
For over 37 years the Symbol of Quality



BRUNNER LP Gas u contained compres unit, 4 cylinder, 5 h



WRITE FOR NEW FREE BO

It describes the Brunner and contains more illus agrams, tables and valu mation on the handling than any booklet ever is

GROW . . . with an Expanding Industry

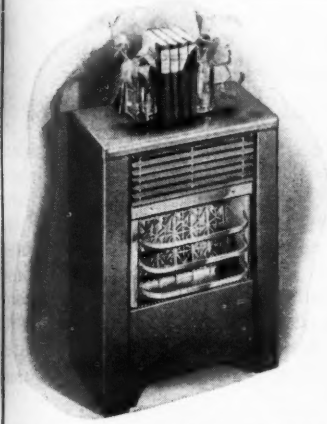
This Propane tank is ready to be shipped to a wide awake LP-Gas operator whose business is going to grow along with the steady growth of the propane industry.

Increasing expansion is inevitable both for Industrial purposes and to meet the demands for city conveniences in cooking, heating, refrigeration and hot water supply for farmers and small town residents. These demands can be met with low priced LP-Gas . . . there is no more practical means for adequately meeting the need.

Now is the time to check up, especially on your storage facilities. Downingtown builds tanks to A.S.M.E. Standards equipped with valves, ready to install, and complying with all Hartford and National Board of Fire Underwriters' requirements.

Our engineering consultation is available to aid you in plans and specifications for definite jobs.

DOWNINGTOWN IRON WORKS
DOWNINGTOWN, PA.
WELDED and RIVETED PRODUCTS



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A.G.A. Approval, Hi-Crown Burners, Automatic Lighting, Syphonaire Chassis, and Air Insulated Cabinets are features your customers want. Finer—Safer heaters, yet priced unbelievably LOW. Write for literature.

DEARBORN

WORLD'S FINEST...SAFEST

L. P. G. GAS HEATERS

A complete line of Vented and Unvented Quality heaters. Their Ultra Smart Appearance, Outstanding L.P.G. Performance and many Exclusive Features create unprecedented user enthusiasm. You are assured satisfied customers and decidedly lower service costs when you sell this fine line.

BUT. NAT.
PRO. MFG.
MIX. GAS.

FAMOUS HI-CROWN BURNER

BLUE FLAME PILOT LIGHT

Leading L.P.G. Distributors from coast to coast rate it the finest of all burners for Butane. It "performs" without coaxing, constant cleaning or adjusting. Its quiet, odorless operation, great flexibility and reserve capacity insures your customers being completely satisfied.

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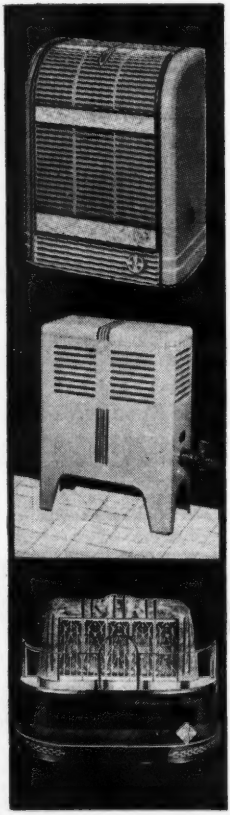
PLACE ORDERS NOW
for Earliest Delivery

Through the war years, our reconversion plans were set for a rapid turnover to civilian goods. Now we're in full swing on peacetime production. Don't delay! Ask your jobber about the popular Armstrong heaters and place your order now.



● **No. 900 Circulating-Radiant Heater.** Designed for proper combustion to produce both radiant and circulating heat. Brown porcelain enamel finish 19" high, 18,000 or 28,000 B.T.U.

● **No. 10-C Bathroom Heater.** 1-piece body finished in white porcelain enamel. Cast iron burner, adjustable air mixers. 14½" high.

● **No. 690 Radiant Heater.** Finished in brown vitreous enamel. 17¾" high. 20,000 or 24,000 B.T.U.

ARMSTRONG PRODUCTS CORP.

Quality Since 1899

Dept. PB **Huntington, W. Va.**

in 1945, Mr. Gordon was elected to the office of vice president of Anchor.

Mr. Hildebrand joins Anchor with an extensive background in the petroleum business, particularly in the field of marketing. Entering the oil business in 1931 with the sales department of Galena-Signal Oil Co., of Texas, he has held positions in purchasing and sales with the Crown Central Petroleum Corp., Deepwater Oil Refineries, Inc., and the Maritime Oil Co. With Maritime, Mr. Hildebrand acted as manager of Bunker Oil Terminal and Transportation departments, as well as refinery sales manager. In 1944 he became vice president in charge of sales, with added direction of foreign and domestic jobbing business.

Both Mr. Gordon and Mr. Hildebrand are well known in foreign and domestic oil trade and are contributing thorough experience to the newly formed Anchor Oil Co., which will engage in the general petroleum business.

Bastian-Blessing Appoints New Los Angeles Distributor

Ellsworth L. Mills, vice president of The Bastian-Blessing Co., Chicago, recently announced the appointment of Western Gas Equipment Co. as the firm's new distributor in Los Angeles, effective Feb. 1. At the same time, Mr. Mills announced that the company's distributor's agreement with L. C. Roney, Inc., will be terminated effective with the close of business Jan. 31.

The two principal owners and managers of Western Gas Equipment Co. are Earl M. Evleth and T. F. Wilson, both of whom have had extensive experience in LP-Gas equipment.

Mr. Evleth spent 13 years in the production and engineering depart-

Hidden Ingredients

IN EVERY SHIPMENT OF SINCLAIR LP-GASES

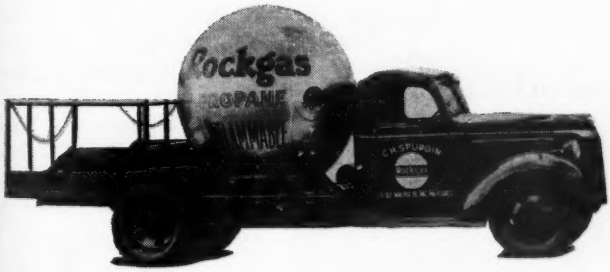
SINCLAIR "Integrity", "Reputation" and "Personal Service" are "hidden ingredients" which come to you in every shipment of SINCLAIR LP-GASES. These make the name SINCLAIR mean more to its dealers.

The test of a source of supply is in the way it takes care of its customers' requirements during the season of peak consumption. SINCLAIR'S planned production fills the orders of its dealers with regularity. Plan your propane purchases with SINCLAIR now.

SINCLAIR PRAIRIE OIL COMPANY

SINCLAIR BUILDING • TULSA, OKLAHOMA

LIQUEFIED PETROLEUM GAS DIVISION



Complete and Compact Delivery Service

This complete combination propane and appliance delivery truck body holds 900 gallon of propane and still leaves room behind for cylinders and appliances. Built for C. H. Spurgin, Rockgas distributor, at Pacific Palisades, California, by the

SUPERIOR TANK & CONSTRUCTION CO.

6155 SO. EASTERN AVE. PHONE AN. 4157 LOS ANGELES, CAL.

PROPANE

If You Are Seeking:—

1—A DEPENDABLE SOURCE
2—A UNIFORM PRODUCT
3—A CAPABLE SUPPLIER
4—AN EXPERIENCED MANUFACTURER

Then inquire—

Cities Service Oil Co.

In Propane also

CITIES SERVICE
means
GOOD SERVICE

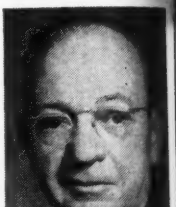
CITIES
Service Oil Co.
(Delaware)

BARTLESVILLE, OKLA. — CHICAGO, ILL.

Other Sales Offices
Cleveland — Kansas City
St. Paul — Toronto

ments of The Bastian-Blessing Co. From 1938 to 1943, he was in charge of production and development for L. C. Roney, Inc., and for the past two

T. F. WILSON



EARL M. EVLETH

years he has been with Hanlon & Wilson Co. as chief engineer.

Mr. Wilson has been a sales engineer in the LP-Gas and allied fields for the past 16 years. In 1939-1940 he acted as district sales manager on the West Coast for The Bastian-Blessing Co., and for the past four years was general manager of Hanlon & Wilson Co.

Western Gas Equipment Co., at its warehouse in Los Angeles, will stock a complete line of The Bastian-Blessing "Rego" LP-Gas parts and assemblies.

Inventory Controls Modified If Affected by Strikes

The Civilian Production Administration announced Dec. 13 a modification of its general inventory controls in the case of work stoppages in manufacturers' plants.

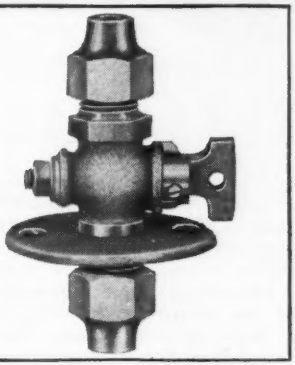
The modification is designed to prevent the piling up in strike-bound plants of excessive inventories of

SEVENTY-SIX YEARS
HAYS
DEPENDABLE SERVICE

FLOOR STOP

DESIGNED especially for the L. P. G. Industry, the Floor Stop illustrated, for use with flared tubing, has proven ideal for applications where rigid mounting is desirable. Working closely with L. P. G. Engineers, Hays has developed a complete line of stops and fittings to fill the requirements of this fast-growing industry. Stops and fittings are complete with couplings, no other fittings or adapters being necessary.

Send us your specific requirements. We will give you complete information promptly, without obligation.



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OXFORD Bottled Gas CABINETS

Made in three styles — Single Hood, Dual Hood and Full Size. Sturdily constructed of heavy metal with protective coating of paint or galvanized to insure rust resistance. Write for prices and detail.

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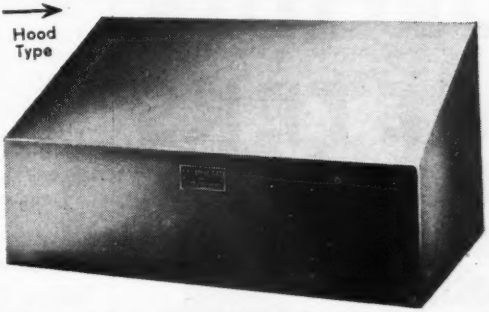
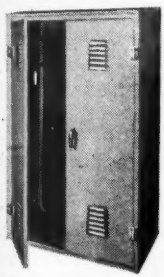


Full Size Cabinet →



Thousands of Oxford Bottled Gas Cabinets, Full Size, Single Hood and Dual Hood Types, are in use in many parts of the country giving satisfactory service over many years.

Liquid Propane Vaporizer

Insures vaporized gas in any degree of cold weather. Outstanding superiority is that it is installed OUTSIDE the tank—always accessible. Write for details and prices.

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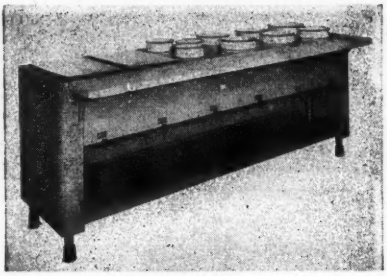

THURMADUKE

The new modern Thurmaduke operates with less than one-third the gas required for a steam table with a water pan—the heat control insures proper temperature for each food—no unsanitary water pan to keep clean and the improved, efficient insulation, all tend to save many dollars and serve better food.

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SAVE
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* LOSSES
* DELAYS
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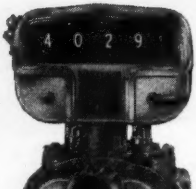

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critical materials which are badly needed for use by other manufacturers and, also, to prevent unnecessary disruption of suppliers' production schedules and consequent loss of output.

The change was accomplished by issuance of Direction 6 to Priorities Regulation 32, the general CPA inventory regulation.

Direction 6 permits continued receipts of materials during the first 30 days following a work stoppage but requires complete adjustment of outstanding orders by the end of that time. It applies only to materials already on order.

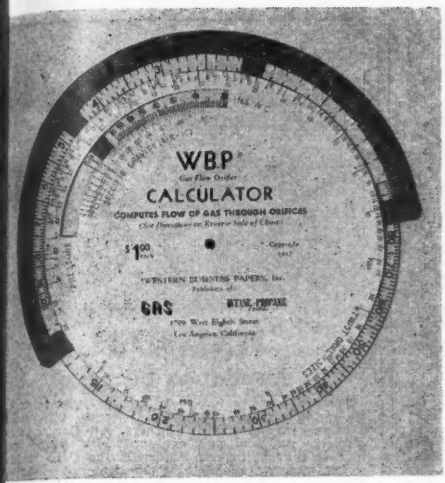
OPA Will Help Veterans With Price Ceilings

The Office of Price Administration acted Dec. 14 to prevent certain base period experience requirements in a small number of price ceiling regulations from hindering veterans of World War II in returning to their former businesses.

Maximum average prices, highest price lines and quotas that depend on a seller's actual experience in a specific base period will be made available, on application, to qualified veterans who, because of military service, were not engaged in the particular business during the specified base period.

All CPA Field Offices Were Closed Dec. 31

The Civilian Production Administration announced recently that all its field offices were to be closed on or before Dec. 31, 1945. All applications for priorities assistance under Priorities Regulation 28, heretofore handled in the field offices, must be forwarded to its headquarters in Washington for handling, CPA said.



GAS FLOW ORIFICE CALCULATOR

Invaluable to LP-Gas Engineers, Shop Men, Domestic Appliance Service Departments, LP-Gas Appliance Manufacturers, and All Others Who Need to Check or Determine LP-Gas Orifice Sizes.

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- **No Need for Calculations**

Ever had to convert an appliance from manufactured or natural gas to LP-Gas and needed to know what orifice size to install? Ever had to estimate how much gas a burner could handle? Ever had to convert B.t.u. per hr. to cu. ft. per hr., or vice-versa? Ever had to know the B.t.u. input load of an appliance or industrial burner? With the Gas Flow Orifice Calculator you can quickly and accurately work out all these and many other problems.

Checks all factors relative to orifice sizing for gases from 300 B.t.u. to 3300 B.t.u. at pressures from .5-ins. to 15-ins. water pressure. Determines the flow of orifices from sizes 1 to 75 number drills, from sizes A to Z in letter drills, and from sizes 2/64 to 32/64 in fraction drills.

- **No Reference to Tables**
- **Just Set Scales and Read**

Priced for quantity purchase to enable you to obtain a sufficient number for everyone in your organization concerned with orifice sizing. Privilege to return within 10 days, for any reason, further assures your satisfaction. We pay postage on orders accompanied by remittance. Add 2½% sales tax on California orders.

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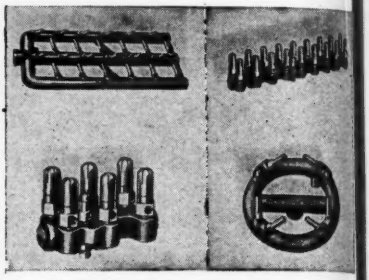

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We make many types of Burner Units to fit a wide range of gas appliances. Nearly 200 appliance makers use Barber Burners. All Barber units correctly designed and equipped with proper jets to suit the appliance. Barber is the ONE burner which assures complete combustion on Butane, Propane or ANY OTHER gas. Appliance builders and fuel distributors give their customers better service, more economy, by advising the use of Barber-equipped appliances. Submit your burner problems to us. Complete new Catalog on request.

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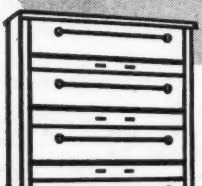

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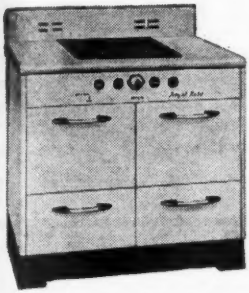

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Free to World War 2 Veterans: Situation wanted ad for three successive months.

HELP WANTED

FLORIDA ESTABLISHED BUTANE DEALER requires the services of experienced manager. Write Box 110, BUTANE-PROPANE *News*, 1709 W. 8th St., Los Angeles 14, Calif.

BUTANE SERVICE MAN WANTED—ONE familiar with all types heating and commercial accounts. All inquiries confidential. Write to Western Natural Gas Co., 1856 Challen Ave., Jacksonville 5, Fla.

SITUATIONS WANTED

SALES EXECUTIVE WISHES TO MAKE change. Successful record in wholesale gas appliance sales and distribution, and thorough knowledge of Bottled Gas field. Prefer Northwest territory. Salary or brokerage basis. Write Box 100, BUTANE-PROPANE *News*, 1709 W. 8th St., Los Angeles 14, Calif.

EQUIPMENT FOR SALE

TWELVE HUNDRED GALLON TRUCK Tank for Propane, U-69 200 lb. working pressure, skirting provides substantial tool and equipment boxes on both sides, good condition, a bargain at $900. F.O.B. La Crosse, Kansas. Phone or Write HUMBURG GAS at La Crosse.

FOR SALE: 4 HORIZONTAL HEAVY riv and welded steel tanks, 10'6" dia. x 30' l Bulged heads, 1" thickness throughout, suita for butane storage. Recently tested satisfa torily for 100 lbs. pressure. Jos. Greenspo Son Pipe Corp., National Stock Yards, St. C County, Illinois.

FOR SALE: 50 PROPANE CYLINDE 100 lb. capacity, light weight, ICC-B 2 Also 300 steel cylinders, ICC-A 1800. W handle 27 lbs. of Propane. Dimensions— diameter by 33" long. We buy or sell bot gas cylinders, and equipment. List your w and surplus with us. No obligation. Home Equipment Co., 1836 E. 23rd St., Cleve Ohio.

EQUIPMENT WANTED

WANTED: EQUIPMENT, NEW OR US to manufacture Domestic and Commercial G Ranges and Heaters. Bessemer Supply Co pany, Distributors of Propane Gas and Suppl Write Box 655, Bessemer, Michigan.

BUSINESS OPPORTUNITIES WANTED

WANTED: ESTABLISHED L.P. GAS D tributing business or dealership. Reply Box No. 120, BUTANE-PROPANE *News*, 1 W. 8th St., Los Angeles 14, Calif.

T. T. Burgess Returns Home From Pacific War Zone

T. T. Burgess, long prominent in the liquefied petroleum gas industry in Arkansas and who was a Seabee in the Philippine campaign, has returned to civilian life and is now at his home, 2419 N. Hays, Little Rock, Ark.

Before Mr. Burgess went into the Service he had B-P Gas plants at Paragould, Wynne, Lebanon and Little Rock. He is enthusiastic over the future of the liquefied petroleum gas industry and hopes to re-establish himself in it in the near future.

National Coffee Association Offers Brewing Booklets

The National Coffee Associati New York City, in cooperation wi the American Gas Association and George Segeler, has prepared t booklets giving instructions for t proper brewing of coffee in the ho and in the restaurant.

The booklets are distributed by t Pan-American Coffee Bureau and c ies may be obtained from J. Rose thal, Executive Director, Joint Coff Promotion Committee, Room 730, 1 Wall Street, New York 5, N. Y.

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